

**UNITED STATES DISTRICT COURT
DISTRICT OF NEW JERSEY**

VICKI DEMBIEC, Individually and as Parent)
and Natural Guardian of M.D. and P.D., **DAVID**)
DUNCAN, Individually and as Parent and)
Natural Guardian of A.D., **NICHOLAS NITTI**,)
Individually and as Parent and Natural Guardian)
of E.N. and N.N., **JOSHUA STONE**,)
Individually and as Parent and Natural Guardian)
of T.S. and K.S., and **DANIELLE**)
WILDSTEIN, Individually and as Parent and)
Natural Guardian of L.W.,)

Civil Action No. 20-cv-20188-KSH-CLW

Plaintiffs,

v.

SCOTCH PLAINS-FANWOOD REGIONAL)
SCHOOL DISTRICT; SCOTCH PLAINS-)
FANWOOD BOARD OF EDUCATION; and)
DR. JOAN MAST, in her Official Capacity as)
Superintendent of Schools,)

Defendants.

AMENDED COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF

JAMES G. MERMIGIS, ESQ.

The Mermigis Law Group, P.C.

85 Cold Spring Road

Suite 200

Syosset, New York 11791

(516) 353-0075

mermigislaw@gmail.com

Admitted pro hac vice

DANIEL L. SCHMUTTER, ESQ.

HARTMAN & WINNICKI, P.C.

74 Passaic Street

Ridgewood, New Jersey 07450

(201) 967-8040

(201) 967-0590 (fax)

dschmutter@hartmanwinnicki.com

Attorneys for Plaintiffs

LOCAL CIVIL RULE 10.1 STATEMENT

The mailing addresses of the parties to this action are:

Vicki Dembiec
1980 Farmingdale Road
Scotch Plains, NJ 07076

David Duncan
201 Marian Avenue
Fanwood, NJ 07023

Nicholas Nitti
39 St Johns Place
Fanwood, New Jersey 07023

Joshua Stone
2467 Hill Road
Scotch Plains, NJ 07076

Danielle Wildstein
12 Clinton Lane
Scotch Plains, NJ 07076

Scotch Plains-Fanwood Regional School District
512 Cedar Street
Scotch Plains, NJ 07076

Scotch Plains-Fanwood Board of Education
512 Cedar Street
Scotch Plains, NJ 07076

Dr. Joan Mast
512 Cedar Street
Scotch Plains, NJ 07076

Plaintiffs, **VICKI DEMBIEC, DAVID DUNCAN, NICHOLAS NITTI, JOSHUA STONE and DANIELLE WILDSTEIN**, by and through their undersigned counsel, file this Amended Complaint against the Defendants, **SCOTCH PLAINS-FANWOOD REGIONAL SCHOOL DISTRICT, SCOTCH PLAINS-FANWOOD BOARD OF EDUCATION and DR. JOAN MAST**, in her Official Capacity of Superintendent of Schools, (referred to individually and collectively as Defendants), and state as follows:

NATURE OF THIS ACTION

1. This civil action challenges the blatant abuse of discretion by Defendant Dr. Joan Mast, Defendant Scotch Plains-Fanwood Board of Education, and Defendant Scotch Plains-Fanwood Regional School District for the unconstitutional, random and arbitrary continued shutdown of *in-school learning* in their public school system. Plaintiffs bring the within claims on behalf of themselves and their children.

INTRODUCTION

2. In the early months of 2020, the Center for Disease Control (“CDC”) identified cases of a virus, COVID-19, that were a threat to the citizens of the United States.

3. Within short weeks, governing leaders started to act to protect the public and, with input from the Center for Disease Control, took action to shut down public life in an unprecedented way for the American people.

4. Initially, in the State of New Jersey, residents were told the reason they were being order to stay home was to “flatten the curve.”

5. Residents were warned about the threat of the COVID-19 virus and advised that the reason they were being ordered not to convene for a “short period of time” was to “flatten the curve” of those who would contract the virus and limit the populations of those needing and

seeking help from hospitals so that hospitals would not be overwhelmed by those affected with the virus.

6. The public was warned that failure to comply with taking drastic measures to protect the public health would lead to the deaths of two million Americans.

7. While finding it difficult and economically damaging, the residents followed the directives of Governor Murphy and shuttered our schools and businesses.

8. Governor Murphy shut down the operations of the entire State excepting certain “essential” services to include a few areas essential to human life until such time as the crisis could be averted.

9. In fact, despite the State of New Jersey being one of the epi-centers of the COVID-19 virus, the hospitals were never overwhelmed by a population of those suffering from COVID-19.

10. In fact, the “curve” was flattened by the middle of May as those dying of COVID-19 plummeted in number causing policy makers to stop reporting the mortality rates and instead start to report the number of those who had contracted the virus.

11. In fact, of the approximately 200,000 deaths in the U.S., only six (6%) had COVID-19 as the only cause mentioned. Ninety-four percent (94%) of COVID-19 victims had an average of 2.6 co-morbidities.

https://www.cdc.gov/nchs/nvss/vsrr/covid_weekly/index.htm#Comorbidities

12. Even though the curve was flat, restrictions remained.

13. The mortality rate for children, young adults and those up to 45 years of age is mathematically nearly zero percent.

<https://www.washingtonexaminer.com/news/stanford-doctor-coronavirus-infection-fatality-rate-for-people-under-45-almost-0>

14. After abruptly closing schools in March 2020, essentially costing most children months of valuable education, Defendants have continued to shutdown schools while subjecting children to isolating and ineffective remote learning, putting children at risk for further academic stagnation or loss of skills and giving rise to significant mental health risks.

15. Defendants' arbitrary actions will deprive Plaintiffs' children, and all Scotch Plains-Fanwood school children, of the opportunity for a meaningful education, including appropriate academic instruction and social/emotional growth and support, all of which are critical to ensure success later in life. Hence, Defendants' arbitrary and capricious actions put at risk the futures of an entire generation of New Jersey children and have long term implications for economic stability in the state.

16. As of 9/30/20, not a single person in New Jersey in the age group 5-17 years died of COVID-19. (*See* Dr. Knut Wittkowski Expert Affidavit attached as Exhibit A. ("Wittkowski Aff."))

17. There is clear evidence that the Northeastern United States, including the State of New Jersey, has reached herd immunity regarding COVID-19, and deaths have significantly declined. Keeping schools closed or implementing strict mitigation plans are not necessary in New Jersey. (*Id.*)

18. There is no evidence that school aged children are at risk of COVID-19 in a school setting, any more than they are elsewhere in the community.

19. There is no evidence that students transmit COVID-19 to teachers or adults in a school setting or elsewhere in the community.

20. The infection fatality ratio of children between 0-19 years old is .00003%.
<https://www.cdc.gov/coronavirus/2019-ncov/hcp/planning-scenarios.html>

21. CDC Director Dr. Robert Redfield said they do not recommend closing schools. Redfield stated that research shows that COVID-19 was not acquired at schools.
<https://www.c-span.org/video/?c4924557/cdc-director-redfield-data-supports-face-face-learning-schools>

22. CDC Director Dr. Robert Redfield stated that schools are among the safest places for children to be during the coronavirus pandemic and further stated that “there is extensive data that confirms . . . K-12 schools can operate with face-to-face learning and they can do it safely and responsibly.”
<https://www.c-span.org/video/?c4924557/cdc-director-redfield-data-supports-face-face-learning-schools>

PARTIES

23. Plaintiffs are parents of children who are enrolled in Scotch Plains-Fanwood Public Schools and whose right to an education, right to literacy, due process, and equal protection continue to be violated by Defendants’ continued shutdown of Scotch Plains-Fanwood Public Schools, which is causing irreparable harm to their children and depriving them of their fundamental rights.

24. Plaintiff Vicki Dembiec is the parent of M.D., age 17, who is a Senior at Scotch Plains-Fanwood High School and has been shut down from attending *in person* classes since March, 2020. Plaintiff’s other son, P.D., was forced to attend private school due to his struggles with remote learning.

25. Plaintiff David Duncan is the parent of A.D., age 6, who was attending McGinn Elementary School, and has been shut down from attending *in person* classes.

26. Plaintiff Nicholas Nitti is the parent of E.N., who was attending Scotch Plains-Fanwood High School and N.N., who was attending Park Middle School, and are both shut down from attending *in person* classes since March, 2020.

27. Plaintiff Joshua Stone is the parent of T.S. and K.S., both of whom were attending Brunner Elementary School and now have been shut down from attending *in person* classes.

28. Plaintiff Danielle Wildstein is the parent of L.W., who was attending Coles Elementary School and now has been shut down from attending *in person* classes.

29. Remote learning puts Plaintiffs' children at a complete disadvantage as compared to other like students in the state of New Jersey and throughout the country. As long as there is remote learning in the Scotch Plains-Fanwood School District, Plaintiffs and their children will continue to suffer irreparable harm in this critical stage of their children's development.

30. Defendant Scotch Plains-Fanwood Regional School District is one of 678 school districts in the State of New Jersey. The School District provides education to students in grade levels Pre-K through twelve. Geographically, the District is comprised of the Borough of Fanwood and the Township of Scotch Plains.

31. Defendant Scotch Plains-Fanwood Board of Education serves as the policy maker for the School District, is comprised of nine elected officials, and issues its directives, and subsequent updates and supplemental guidance on instruction for the 2020-21 school year. Defendant is responsible for enforcing education law and regulations and also appointed Defendant Dr. Joan Mast as Superintendent of Schools.

32. Defendant Dr. Joan Mast is the Superintendent of Schools for the Scotch Plains-Fanwood Regional School District and is the chief executive officer of the School District, responsible to the Board for total educational and support operations. Defendant Mast has shut down all public schools since the COVID-19 pandemic began. The Superintendent was appointed by the elected officials on the Scotch Plains-Fanwood Board of Education and is being sued in her official capacity. Among other things, Defendant Mast issued her directives, and subsequent updates and supplemental guidance on instruction for the 2020-21 school year with recommendations from the Scotch Plains-Fanwood Board of Education. Defendant Mast is responsible for enforcing education law and regulations in the Scotch Plains-Fanwood Regional School District.

JURISDICTION & VENUE

33. This action arises under 42 U.S.C. § 1983 in relation to Defendants' deprivation of Plaintiff's constitutional rights to due process and equal protection rights under the Fourteenth Amendments to the U.S. Constitution. Accordingly, this Court has federal question jurisdiction under 28 U.S.C. §§ 1331 and 1343. This Court has authority to award the requested declaratory relief under 28 U.S.C. § 2201; the requested injunctive relief and damages under 28 U.S.C. § 1343(a) and 42 U.S.C. § 1983; and attorneys fees and costs under 42 U.S.C. § 1988.

34. The Court has jurisdiction over Plaintiffs' federal law claims under 42 U.S.C. § 1331 and 28 U.S.C. § 1343.

35. The Court has jurisdiction over Plaintiffs' supplemental state court claims under 28 U.S.C. 1367.

36. Venue is proper in the District of New Jersey, Vicinage of Newark under 28 § 1391(b) in that a substantial part of the events giving rise to Plaintiffs' claims occurred in this district.

RELEVANT FACTS

37. On August 14, 2020, Defendants sent a letter to Plaintiffs that the Defendant Scotch Plains-Fanwood Public School District would begin the Fall 2020 school year with "*All Virtual Learning*" model, after the Plaintiffs were originally notified that school would begin in a hybrid format. (See August 14, 2020 Letter attached as Exhibit B.)

38. The Defendants blame this decision on additional guidance from the New Jersey Department of Health and Defendants stated that they did not feel that "*all the buildings are ventilated to the level required to contain the spread of Covid-19.*"

39. On October 8, 2020, Defendants send letter with an anticipated planned schedule for opening school buildings utilizing a *hybrid model* for all students. (See October 8, 2020 Letter attached as Exhibit C.)

- a. Pre-K will begin hybrid instruction on October 22, 2020;
- b. K-1st Grade will begin hybrid instruction on October 26, 2020;
- c. 2nd-5th Grade will begin hybrid instruction on November 9, 2020; and
- d. 6th-12th Grade will begin hybrid instruction on November 16, 2020.

40. On November 15, 2020, the Defendants arbitrarily decided to shift to *full remote learning* from November 16, 2020 until January 15, 2021. As a result, the children were once again kicked out of *in school learning*. (See November 15, 2020 Letter as Exhibit D.)

41. While most children in the District have not been to school in person since March 2020, school districts in the surrounding communities are all open for "*in school learning.*"

42. For example, Clark, Mountainside, and Berkeley Heights have been open since mid-September for hybrid learning in *all* schools for five partial in person days. Defendants refuse to do so even though Defendant Mast publicly acknowledged at a School Board meeting on October 29, 2020 that remote learning is inferior to in-person learning.

43. Chaos has once again ensued in the Scotch Plains-Fanwood Public Schools as children have been kicked out of school buildings and parents struggle to look for child care and make impromptu arrangements with their employers. At best, remote learning is inconsistent, but in far too many cases it is tragically disastrous and far too many students receive little or no instruction of value, all while being isolated from friends and teachers.

44. Almost without exception, *in-person instruction* is superior in every aspect to both the remote and hybrid models. For nearly all students, they are disadvantaged in many ways during fully remote instruction. (See Declaration of Dr. Harold M. Tarriff, Exhibit. E. (“Tarriff Dec.”))

45. Some of the negative consequences of remote learning include the following:

- a. Student-teacher relationships are impeded;
- b. Social isolation for students and teachers;
- c. Social Emotional Learning inhibited;
- d. Inferior Instruction impeding progress;
- e. Learners unknowingly left behind;
- f. Some students do not log in;
- g. Students with disabilities not receiving IEP mandated support and accommodations;
- h. Students with behavioral anomalies are exacerbated; and
- i. The measurable, cumulative effect of learning loss can severely impact

many students kept from the classroom for any sustained period.

(Tarriff Dec.)

COVID-19 Studies in School-Aged Children

46. COVID-19 appears to have a minimal impact on school-aged children and school-aged children also appear to not easily spread the virus to other children or to adults. Nationally, children ages 5 to 17 are hospitalized at a rate of 8.1 per 100,000 population versus 151.7 overall (and 412.9 for those age 65 and over.)

<https://www.cdc.gov/mmwr/volumes/69/wr/mm6932e3.htm>

47. On December 4, 2020, the Australian Research Council released a study that looked at data from China, Japan, France, Germany, Italy, USA, Vietnam, Malaysia, Singapore, Morocco, Greece and South Korea. The study concluded that while SARS-CoV-2 can cause mild disease in children, the available data suggest that children have not played a substantive role in the intra household transmission of SARS-CoV-2. Yanshan Zhu, *et al.*, *A meta-analysis on the role of children in SARS-CoV-2 in household transmission clusters*, medRxiv, December 4, 2020. <https://www.medrxiv.org/content/10.1101/2020.03.26.20044826v2.full-text>.

48. On April 3, 2020, the Ministry of Health for British Columbia found that COVID-19 virus has a very low infection rate in children estimated at 1-5% worldwide. (See British Columbia Ministry of Health report attached as Exhibit F.)

49. Two reports (one originally released on April 26, 2020 and updated July 31, 2020 and the second dated July 31, 2020) from schools in the Australian state of New South Wales (NSW) “each covering a school term found limited spread of COVID-19 in school settings (in fact, none in the second term) and found no evidence of children infecting teachers.” (See NCIRS Report attached as Exhibit G.)

50. This study found that SARS-CoV-2 transmission in children in schools appears considerably less than the transmission seen for other respiratory viruses, such as influenza.

51. This data suggests that children are not the primary drivers of COVID-19 spread in schools or in the community. (*See lancet.com* Report as Exhibit H.)

52. On May 18, 2020, during a video conference of ministers of education with the Council of the European Union, it was reported that since the reopening of schools in 22 member states, there had been no increase in infections of COVID-19 among students, teachers and parents.
<https://www.consilium.europa.eu/en/meetings/eycs/2020/05/18/>

53. On May 28, 2020 of Irish school children showed no evidence of secondary transmission of COVID-19 from the studied children. Notably, the study included a variety of settings. These included music lessons (woodwind instruments) and choir practice, both of which are high-risk activities for transmission. Furthermore, no onward transmission from the three identified adult cases to children was identified. Laura Heavey, *et al.*, *No evidence of secondary transmission of COVID-19 from children attending school in Ireland, 2020*, 25 Euro Surveillance, May 28, 2020.

<https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2020.25.21.2000903>.

54. In a June 2020 study of 1,340 children and adults (parents/relatives and school staff), scientists from the Institute Pasteur in France, reported that in their study, they found that infected children did not spread the virus to other children or to teachers or staff. Arnaud Fontanet, *et al.*, *SARS-CoV-2 infection in primary schools in northern France: A retrospective cohort study in an area of high transmission*, medRxiv, June 29, 2020.

<https://www.medrxiv.org/content/10.1101/2020.06.25.20140178v2>.

55. A study of more than 1,700 German school children and teachers in the state of Saxony begun in May 2020 and completed in October 2020 concluded that schools and young people do not play a significant role in the transmission of the coronavirus and may even serve as a brake on transmissions. Jakob P. Armann *et. al.*, *SARS-CoV-2 IgG antibodies in adolescent students and their teachers in Saxony, Germany (SchoolCoviDD19): persistent low seroprevalence and transmission rates between May and October 2020*, medRxiv, November 29, 2020. <https://www.medrxiv.org/content/10.1101/2020.07.16.20155143v4.full-text>.

56. There is also evidence showing that remote learning leads to decreased teacher interaction with students. *Id.*, at 10 (There are concerning signs that many teachers have had no contact at all with a significant portion of students . . . only 39% of teachers reported interacting with their students at least once a day, and most teacher-student communication occurred over electronic mail, and absenteeism).

57. Another study showed that, even for children receiving average quality online learning in the fall of 2020, students would lose three to four months of learning by January 2021. <https://www.mckinsey.com/industries/public-and-social-sector/our-insights/covid-19-and-student-learning-in-the-united-states-the-hurt-could-last-a-lifetime>

COUNT ONE

42 U.S.C. § 1983 - Violation of Due Process under the Fourteenth Amendment (Substantive Due Process)

58. Plaintiffs hereby incorporate herein by reference each and every allegation contained in the preceding paragraphs of this Complaint as though fully set forth herein.

59. The Due Process Clause of the Fourteenth Amendment provides that “[no] State shall . . . deprive any person of life, liberty, or property, without due process of law;” U.S. Const.

amend XIV. In particular, the Due Process Clause specially protects those fundamental rights and liberties which are, objectively, deeply rooted in this Nation's history and tradition, and implicit in the concept of ordered liberty, such that neither liberty nor justice would exist if they were sacrificed. *Washington v. Glucksberg*, 521 U.S. 702, 720-721 (1997) (internal citations and quotation marks omitted). Plaintiffs and their children have a fundamental right to a basic, minimum education.

60. Access to a foundational level of literacy -- provided through public education -- has an extensive historical legacy and is so central to our political and social system as to be "implicit in the concept of ordered liberty." *Id.*

61. The Due Process Clause has also been read to recognize that certain interests are so substantial that no process is enough to allow the government to restrict them, at least absent a compelling state interest. *Id.* at 719-21. The Constitution provides a fundamental right to a basic minimum education. *See Gary B. v. Whitmer*, 957 F.3d 616 (6th Cir. 2020), *vacated en banc without decision*, 958 F.3d 1216 (6th Cir. 2020).

62. Defendants have deprived Plaintiffs and their children of this fundamental right in violation of the Fourteenth Amendment to the U.S. Constitution, by effectively precluding children from receiving a basic minimum education and their fundamental right to literacy.

63. The United States Constitution entitles Plaintiffs to be free from any burden to a fundamental right unless the infringement is narrowly tailored to serve a compelling state interest.

64. Defendants lack any compelling, or even rational, interest for burdening Plaintiffs' children of their fundamental right to a basic minimum education. The weight of the evidence shows that children's transmission and infection rates cannot justify school closures. Defendants

further ignore that the evidence of mortality risk and severe adverse health outcome risk to children from COVID-19 disease is virtually non-existent.

65. Risk to teachers may be managed just as risk to other essential workers is managed in New Jersey by offering choices and providing protection. The challenges posed by the situation pale in comparison to the harm being inflicted on Plaintiffs' families through the deprivations of their constitutional rights.

66. Plaintiffs have no adequate remedy at law and will suffer serious and irreparable harm to their constitutional rights unless Defendants are enjoined from shutting down the schools.

67. Pursuant to 42 U.S.C. §§ 1983 and 1988, Plaintiffs are entitled to declaratory relief and temporary, preliminary, and permanent injunctive relief invalidating and restraining enforcement of the Defendants' Order to shut down the schools.

COUNT TWO

42 U.S.C. § 1983 - Violation of the Equal Protection Clause under the Fourteenth Amendment - Arbitrary School Closures

68. Plaintiffs incorporate by reference each and every allegation contained in the preceding paragraphs of this Complaint as though fully set forth herein.

69. The Equal Protection Clause prohibits governmental classifications that affect some groups of citizens differently than others. *Engquist v. Or. Dept. of Agric.*, 553 U.S. 591, 601 (2008). The touchstone of this analysis is whether a state creates disparity between classes of individuals whose situations are arguably indistinguishable. *Ross v. Moffitt*, 417 U.S. 600, 609 (1974).

70. In addition to the pivotal role of education in sustaining our political and cultural heritage, denial of education to some isolated group of children poses an affront to one of the goals

of the Equal Protection Clause which would be the abolition of barriers presenting unreasonable obstacles to advancement on the basis of individual merit.

71. Paradoxically, by depriving the children of any disfavored group of an education, we foreclose the means by which that group might raise the level of esteem in which it is held by the majority.

72. Defendants' shutdown of public schools violates Plaintiffs' and their children's right to equal protection.

73. Plaintiffs have no adequate remedy at law and will suffer serious and irreparable harm to their and or their children's constitutional rights unless Defendants are enjoined from shutting down public schools.

74. Pursuant to 42 U.S.C. §§ 1983 and 1988, Plaintiffs are entitled to declaratory relief and temporary, preliminary, and permanent injunctive relief invalidating and restraining enforcement of the Defendants' Orders and any associated guidance documents.

COUNT THREE

N.J.S. 10:6-2 – Deprivation of Thorough and Efficient System of Free Public Schools – N.J. Constitution, Art. 8, § IV, ¶ 1

75. Plaintiffs incorporate herein by reference each and every allegation contained in the preceding paragraphs of this Complaint as though fully set forth herein.

76. N.J. Constitution, Art. 8, § IV, ¶ 1 provides for the Maintenance and Support of thorough and efficient system of free public schools.

77. Here, the Defendants have failed in their obligation to provide for the maintenance and support of a thorough and efficient system of free public schools for the instruction of all children.

78. Distance learning does not satisfy the Defendants' obligation to provide Plaintiffs and those similarly situated their constitutional right to an adequate education.

79. Plaintiffs have no adequate remedy at law and will suffer continuous, serious and irreparable harm to their state constitutional rights unless Defendants are enjoined from implementing and enforcing their broad prohibitions on in-person education and the Defendants are enjoined from providing distance learning while all the surrounding communities are providing *in school learning*.

80. Pursuant to N.J.S. 10:6-2, Plaintiffs are entitled to declaratory relief and temporary, preliminary, and permanent injunctive relief invalidating and restraining enforcement of the Defendants' Orders and any associated guidance documents.

PRAYER FOR RELIEF

WHEREFORE, Plaintiffs respectfully ask this Court to grant Plaintiffs the following relief:

A. A declaratory judgment that the Defendants shutting down of all in-person learning is unconstitutional; and

B. Temporary, preliminary, and permanent injunctive relief enjoining Defendants from further shutting down all in-person learning;

C. Temporary, preliminary, and permanent injunctive relief enjoining the shutdown of all in-person leaning;

D. An order requiring that Defendants issue new guidance reinstating hybrid in-person instruction for at least five partial days per week in all schools without delay; and

E. An award of Plaintiffs' reasonable attorney fees, costs, and expenses under applicable state and or federal law; and

F. Any other such further relief to which Plaintiffs or which the Court determines to be just and proper.

Dated: Ridgewood, New Jersey
February 12, 2021

HARTMAN & WINNICKI, P.C.

/s/ Daniel L. Schmutter

By: Daniel L. Schmutter, Esq.
Hartman & Winnicki, P.C.
74 Passaic Street
Ridgewood, New Jersey 07450
(201)967-8040
dschmutter@hartmanwinnicki.com

JAMES G. MERMIGIS, ESQ.

Admitted pro hac vice
The Mermigis Law Group, P.C.
85 Cold Spring Road
Suite 200
Syosset, New York 11791
516.353.0075
mermigislaw@gmail.com

Attorneys for Plaintiffs

EXHIBIT “A”

EXHIBIT “A”

**UNITED STATES DISTRICT COURT FOR
THE DISTRICT OF NEW JERSEY**

-----X
**VICKI DEMBIEC, an Individual; DAVID DUNCAN,
an Individual; NICHOLAS NITTI, an Individual;
JOSHUA STONE, an Individual; and
DANIELLE WILDSTEIN, an Individual,**

Plaintiffs,

Against

Case No.:

**THE SCOTCH PLAINS-FANWOOD PUBLIC
SCHOOL DISTRICT, THE SCOTCH PLAINS
FANWOOD BOARD OF EDUCATION and DR.
JOAN MAST, in her Official Capacity as
Superintendent of Schools,**

DECLARATION

Defendants.

-----X

I, KNUT M. WITTKOWSKI, MS PHD SCD, declare as follows:

1. My name is Knut Wittkowski. I reside in New York, NY. I am above 18 years of age and I am otherwise competent to make this declaration.
2. After receiving my MS in biostatistics, a PhD in computer science, and an ScD in medical biometry (physiology, epidemiology, and genetics), I worked for 10 years at the University of Tübingen in Germany with Klaus Dietz, the epidemiologist who coined the term “basic reproduction number”. Subsequently, I was the head of Biostatistics, Epidemiology, and Research Design at The Rockefeller University, in New York City for 20 years. I am an author of 141 published studies. (1)
3. At this time, we have clear evidence that the Northeastern United States, including New Jersey, has reached herd immunity regarding COVID 19, and deaths have significantly declined.
Keeping the schools closed or implementing strict mitigation plans, such as those implemented in New Jersey, are not necessary. (2)
4. Right now, it seems like there is an epidemic of fear driving policy makers in New Jersey. This fear is putting the health of many more people in danger than the COVID 19 virus, especially in

New Jersey. There is no evidence supporting a substantial risk to children or to teachers. New Jersey should go back to "normal", and open schools under the same conditions as in September 2019.

9. There is no evidence that school aged children are at risk of Covid-19 in a school setting any more than they are elsewhere in the community.

10. There is no evidence that students transmit Covid-19 to teachers or adults in a school setting or elsewhere in the community.

11. Mitigation strategies such as mandatory masking, lock-downs, or keeping healthy children at home or in isolation are not necessary, and if implemented, will only work to cause MORE harm by delaying herd immunity, and by causing more infections in higher risk populations. (7)

12. To minimize deaths from a viral epidemic, masks should only be worn by the vulnerable, by the elderly, and by those directly interacting with the vulnerable and the elderly. Allowing herd immunity to build primarily among the young and healthy who are not at risk of severe illness will minimize the risk of deaths in the population.

13. The most recent CDC data shows minimal mortality in children overall in the US. (8)

Preview of Provisional COVID-19 Death Counts by Sex, Age, and State

Date as of	Start Week	End Week	State	Sex	Age Group	COVID-19	Total Dea	Pneumo...	Pneumo...	Influenza...	Pneumo...
06/18/2020	01/05/2020	06/15/2020	United States	All	Under 1 year	73	16,514	67	2	16	118
06/18/2020	01/05/2020	06/15/2020	United States	All	1-4 years	73	1,840	20	1	41	113
06/18/2020	01/05/2020	06/15/2020	United States	All	5-14 years	21	2,625	10	8	61	162
06/18/2020	01/05/2020	06/15/2020	United States	All	15-24 years	254	17,838	358	30	61	535
06/18/2020	01/05/2020	06/15/2020	United States	All	25-34 years	7,001	87,580	1,864	507	1,162	2,189
06/18/2020	01/05/2020	06/15/2020	United States	All	35-44 years	3,126	52,425	1,312	1,359	241	1,001
06/18/2020	01/05/2020	06/15/2020	United States	All	45-54 years	8,181	97,325	1,793	1,721	375	1,419
06/18/2020	01/05/2020	06/15/2020	United States	All	55-64 years	19,729	222,744	20,965	9,289	1,228	12,418
06/18/2020	01/05/2020	06/15/2020	United States	All	65-74 years	33,270	389,355	36,454	15,409	1,542	14,595
06/18/2020	01/05/2020	06/15/2020	United States	All	75-84 years	47,230	475,568	44,545	18,314	1,462	18,421
06/18/2020	01/05/2020	06/15/2020	United States	All	85 years and	29,855	379,942	49,835	19,421	1,571	18,551
06/18/2020	01/05/2020	06/15/2020	United States	All	All ages	127,413	1,271,261	162,348	68,187	4,523	26,814

The above link shows that not a single child of age 5-14 years died of COVID in New Jersey.

14. Given the very low mortality among the young and healthy, schools can and should open as normal without the restrictions imposed by New Jersey policy makers and school boards.

(1,2,3,4,5,6)



December 15, 2020

KNUT M.

WITTKOWSKI, MS PHD SCD DATE

References

1. Stand Up for Your Rights, says Bio-Statistician Knut M. Wittkowski, American Institute for Economic Research, April 6, 2020.

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EXHIBIT “B”

EXHIBIT “B”

The Scotch Plains-Fanwood Public Schools

**512 Cedar Street
Scotch Plains, New Jersey 07076**

**Dr. Joan Mast, Ed.D.
Superintendent of Schools**

**908-232-6161
Ext. 4001 or 4002**

August 14, 2020

Dear SPF Community,

For the last six months, we have all navigated the ever changing landscape that the coronavirus pandemic continues to create. Throughout, the health and safety of our students and staff have been our top priority. As we face the start of a new school year, health and safety must remain at the forefront of our concerns.

Last night, school districts were sent additional guidance from the NJ Department of Health. After closely reviewing the details regarding the safe reopening of schools, we see that New Jersey is still in the moderate zone for the spread of the Coronavirus disease. With this level of Covid-19 still in our communities, we must know with complete confidence that our buildings meet the highest safety levels. The guidelines provide clarity in regards to the important role that ventilation systems play in containing the spread of the virus. The overall district ventilation system is an area of concern which needs and requires professional assessment and targeted remediation. Our current HVAC systems are unable to accept MERV 13 filters, thus requiring alternatives to provide additional air filtering.

While it is my understanding that our ventilation systems are adequate and appropriate for a typical school year, this clearly is not a typical school year. At this time, we do not feel that all the buildings are ventilated to the level required to contain the spread of Covid-19. As soon as we are reasonably able to determine the timeframe required to remedy the situation, I will provide updates about this work to both the public and the NJ Department of Education.

Based on the new guidance provided by the NJ Department of Health, and in an abundance of caution, our district is updating our Restart Plan to reflect All Virtual Learning as our first option. Once approved by the County Superintendent, our district will start school in September using the At Home Virtual learning model. By doing so, we are prioritizing the health and safety of our students, teachers and entire staff. The Spring of 2020 taught us many lessons in regards to At Home Learning. This decision will allow us to put all of our energy into creating the best pedagogical model for delivering online instruction for the start of school.

Many of you attended the SPF Restart Plan Parent Information Sessions this week. Although the focus was on the implementation of the hybrid model, much of the information applies to the fully virtual model as well. The structure of your child's classes will follow a set schedule and will be the same that we described in these sessions. The structure will include real-time interaction between students and teachers. Information for our students that receive Special Services will be forthcoming.

We will be delaying the start of the school year for students until September 14. This will give our Administration and Staff Members (4) days at the beginning of September for additional Professional Development, and will help us to ensure that all students are equitably equipped with the technology they need to participate in the enhanced model of virtual instruction that we will provide. The virtual plan will

include stimulating and rigorous lessons in a variety of formats for increased student engagement. With the addition of counselors and Social Emotional Learning professional development, attention will be given to building teacher to student, and student to class group connections as we focus to safeguard students' social and emotional wellbeing.

This is a deeply emotional time for everyone, and we realize that some families, such as those who have already chosen an all-remote option, will welcome this change while others will not. We understand that there will be childcare and work challenges for families. We will continue to work with the FSP YMCA and the JCC to build a strong support system for our students and their families.

I am confident that together, we will continue to successfully educate our children in the months ahead. We must protect the future by standing united as a community of parents, students, teachers, administrators and Board of Education members. This pandemic will eventually end and what will matter most, is that we move forward through this time united in protecting our community. As ever, our Scotch Plains-Fanwood teachers, staff and Board of Education are committed to working on behalf of you and your families to create a bright future for all our children.

We will be holding virtual information sessions the week of August 24 with Dr. Mast and Administration to listen to your questions and concerns. Details will follow.

In the interim you may submit questions to: reopening-spf@sptk12.org.

Sincerely,

Dr. Joan Mast
Superintendent of Scotch Plains-Fanwood Schools

EXHIBIT “C”

EXHIBIT “C”

The Scotch Plains-Fanwood Public Schools

512 Cedar Street
Scotch Plains, New Jersey 07076

Dr. Joan Mast, Ed.D.
Superintendent of Schools

908-232-6161
Ext. 41102 or 41103

October 8, 2020

Dear SPF Community,

I hope that this letter finds you and your family doing well. Hopefully, you had the opportunity to experience one of the Back to School Nights hosted by schools throughout the district. The feedback received by myself and the building principals was overwhelmingly positive from both teachers and parents. Many shared that it was easier to “navigate the hallways” and less stressful than rushing to school after work. Teachers found this format to be a more intimate way to share their classes with you.

Our virtual start of the school year has provided our students with a robust remote experience, and we have learned valuable information about how our procedures and technology have worked in the virtual model. We are now in the process of scheduling the next phase of our reopening plan.

During the Board of Education meeting on September 30th, reports were given by the firms E.I. Associates and Environmental Safety Management Corporation. The findings of these reports provided us with the data necessary to continue to make the remediations which will ensure that our buildings are safe for the return of students and staff as described in Governor Murphy’s Executive Order 175. The reports are available on our [website](#).

These multi-paged reports use detailed building floor plans to show which rooms have been assessed. For security purposes, floor plans and room numbers have been redacted. Below is the Districtwide Ventilation Assessment Summary:

School	No Maintenance Required	Maintenance Needed	Structural Changes needed to provide ventilation
Brunner Elementary	55%	40%	5%
Coles Elementary	15%	75%	10%
Evergreen Elementary	56%	37%	7%
McGinn Elementary	25%	71%	5%

Park Middle	50%	43%	8%
School One	45%	55%	0%
SPFHS	59%	30%	11%
Terrill Middle	35%	51%	14%
District Totals	47%	45%	8%

Based on this information the repairs in our buildings have already begun. The ventilation remediations will be addressed in the priority based on the schedule of students that are returning. E.I. Associates will provide a final summary report which will inform the district short term and long term facilities plan.

We have already begun the return of some students to the classroom. Below is the anticipated planned schedule for opening our buildings utilizing the hybrid model in a phase-in approach for **all** students to our buildings.

- **PreK will begin hybrid instruction on October 22, 2020**
- **K - 1st grade will begin hybrid instruction on October 26, 2020**
- **2nd - 5th grade will begin hybrid instruction on November 9, 2020**
- **6th - 12th grade will begin hybrid instruction on November 16, 2020**

Hybrid Model			
	Arrival Time	Instruction Begins	Dismissal
High School	7:50 AM	8:00 AM	1:10 PM
Middle School	8:00 AM	8:10 AM	12:10 PM
Elementary School	8:25 AM	8:35 AM	12:40 PM
Preschool AM	8:25 AM	8:35 AM	11:05 AM
Preschool PM	12:30 PM	12:40 PM	3:10 PM

Please note: November 3, 2020 is Election Day. The NJDOE has mandated all school buildings that are polling locations to be closed for students and staff, therefore this will be a virtual learning day for all grades.

Currently, our teachers are teaching their classes virtually. As we phase towards the hybrid model, we will be returning to the model originally communicated in the District Restart Plan on pages 35-39. In the hybrid model, teachers will be teaching two groups of students simultaneously, one group at home and one group in the classroom.

As we work toward the next phase, we ask you to complete the Return to School Survey by Monday, October 12, 2020. The survey is critical for scheduling our students in groups and coordinating groupings with sibling assignments. Families will still have the choice for their child to continue with the virtual model. If you choose the hybrid model, and you want to return to virtual-only instruction you may do so at any time. Those that choose the virtual model will have the opportunity to switch to hybrid at the following times:

- Elementary: December 11th (End of Trimester)
- High School and Middle School: December 16th (Marking Per. 2 Progress Reports)

Thank you for your patience and support while we continue to take steps to move forward together.

Sincerely,

Dr. Joan Mast
Superintendent of SPF Schools

EXHIBIT “D”

EXHIBIT “D”

The Scotch Plains-Fanwood Public Schools

**512 Cedar Street
Scotch Plains, New Jersey 07076**

**Dr. Joan Mast, Ed.D.
Superintendent of Schools**

**908-232-6161
Ext. 41102 or 41103**

November 15, 2020

Dear SPF Community,

Over the past few days, as SPF elementary schools reopened for in-person instruction, our school community has seen a sudden increase of students and staff testing positive for COVID-19. Currently, there are 15 COVID-19 positive cases impacting 6 schools and 84 individuals in quarantine. All of these cases originated outside of the school district. The District is working closely with the Union County Department of Health to initiate contact tracing. All persons identified as close contacts have been notified of quarantine protocols.

Due to the significant increases in COVID-19 cases throughout our state and community, and after careful consideration of the risks associated with continued in-person instruction, Scotch Plains – Fanwood School District will shift to full remote learning for all students, including special education students, from Monday, November 16, 2020 through Friday, January 15, 2021. Students will return for in-person instruction on Tuesday, January 19, 2021. The District reserves the right to extend remote learning if circumstances warrant it, or in the event it is required by the State of New Jersey. The decision to shift to remote learning was made in consultation with the Union County Department of Health, the interim executive County Superintendent, the district lead nurse, the district Physician, and with the support of our Board of Education.

The primary factors leading to this decision are as follows:

1. When employees are mandated to quarantine due to close contact with a positive case, building administrators must reassign key personnel on short notice, which can lead to inadequate supervision of students. While quarantine is an effective way to mitigate the spread of COVID-19, it also presents significant operational challenges for our school district. A single positive case can lead to several individuals needing to quarantine.
2. The health and safety of our students and staff remains paramount. With the current surge of positive COVID-19 cases in our state and community, discontinuing in-person instruction is the most effective way to mitigate community spread of the virus.

I recognize that virtual learning comes with challenges for some students and families. However, I am confident that our dedicated teachers and support staff will continue to do everything possible to deliver meaningful instruction for all students. Please stay in contact with your student's teacher(s) and principal so we may assist you during the period of remote instruction.

Over the coming weeks, we will continue to monitor COVID-19 positive case trends in our community and will consider resuming in-person instruction prior to January 19th if it is safe to do so. With the holidays approaching, I urge you to remain vigilant and heed the warning of public health officials who recommend skipping large gatherings to mitigate the spread of this virus. Be sure to practice self-care and encourage your children to do the same. As always, I appreciate your flexibility and patience during this difficult time.

Respectfully,

Dr. Joan Mast
Superintendent of SPF Schools

EXHIBIT “E”

EXHIBIT “E”

**UNITED STATES DISTRICT COURT FOR
THE DISTRICT OF NEW JERSEY**

-----X

VICKI DEMBIEC, an Individual; **DAVID DUNCAN**,
an Individual; **NICHOLAS NITTI**, an Individual;
JOSHUA STONE, an Individual; and
DANIELLE WILDSTEIN, an Individual,

Plaintiffs,

Against

Case No.:

**THE SCOTCH PLAINS-FANWOOD PUBLIC
SCHOOL DISTRICT, THE SCOTCH PLAINS
FANWOOD BOARD OF EDUCATION and DR.
JOAN MAST**, in her Official Capacity as
Superintendent of Schools,

DECLARATION

Defendants.

-----X

Dr. Harold M. Tarriff, on the date noted below and pursuant to § 1746 of title 28 of the United States Code, declares the following to be true and correct under penalty of perjury under the laws of the United States of America:

1. I have spent more than 48 years in Education field, from pre-k to graduate school.
2. I have expertise in both general education and special education in both a private and public school setting.
3. Since March 2020, I have conducted nearly thirty observations of remote and hybrid teaching and learning.
4. Almost without exception, in person instruction is superior in every aspect to both the remote and hybrid models.

5. For nearly all students, they are disadvantaged in many ways during fully remote instruction, and in additional ways with the hybrid model being used.

6. The children that are most disadvantaged are elementary school children and children with special needs.

7. Also at a disadvantage are English language learners and those who do not have adequate technological and human resources in their homes.

8. High School students are also deprived when fully in remote learning or a hybrid model.

9. There are many infrastructure issues with remote or hybrid models including the following:

- a. The inability to use the full range of classroom materials;
- b. distractions caused by other household occupants;
- c. Lack of appropriate workspace;
- d. Limited amounts of on-line content suitable for instruction;
- e. Inability of teachers to collaborate effectively and/or share materials;
- f. Evaluation techniques to assess learning are not available remotely;
- g. Instruction is done asynchronously, similar to watching youTube; and
- h. scheduling time to ensure full student participation is a challenge.

10. There are so many negative consequences as a result of remote or hybrid learning including;

- a. The student/teacher relationship is impeded;
- b. social emotional learning is inhibited;
- c. the programs are part-time;

- d. inferior instruction impedes academic progress;
 - e. many teachers are teaching out of their comfort zone;
 - f. students are unknowingly left behind;
 - g. some students do not attend;
 - h. lacking supports provided in schools;
 - i. school attendance not accurately tracked;
 - j. Strain on students with disabilities who are not receiving IEP mandated support;
 - k. Behavioral anomalies are exacerbated; and
 - l. the measurable, cumulative effect of learning loss can impact severely on many students kept from the classroom for any sustained period, whether hybrid or remote.
11. Hybrid instruction creates inordinate disruption to a child's routine, not to mention a family with multiple schedules.
12. High school students are deprived of the specialized equipment and laboratory experiences that cannot be duplicated safely in the home.
13. Remote instruction is inherently different and in the vast amount of cases inferior to in person learning.
14. Based upon my nearly fifty years of experience in education, it is my expert and professional opinion that children will suffer deleterious effects, to a greater or lesser extent, with prolonged remote instruction.

Dated: December 20, 2020



Dr. Harold M. Tarriff, Ed. D., LDT-C

Dr. Harold M. Tarriff**908-917-5201****DrTarriff@gmail.com****Curriculum Vitae****Employment**

2/18 – Present	Consultant, American Educational Consultants; Specialists in representing schools, parents, and students with special needs
12/14 – 7/15	Interim Director of Special Services, Millburn PS, Millburn, NJ
6/13 – 2/14	Interim Director of Special Services, Clinton Township PS, Clinton, NJ
3/11 – 12/12	Interim Director of Special Services, Randolph Public Schools, Randolph, NJ
2010 – Present	Adjunct Faculty, The College of New Jersey. Graduate Field Supervisor
2010 – Present	Private Consultant, Special Education and General Education
2001 – 2010	Director of Special Services, School District of the Chathams, Chatham, NJ. Special Education, Child Study Teams, ESL, Student Assistance Coordinator, §504/ADA Coordinator, School Health.
2000 – 2001	Principal, Parkview Elementary School (K-3)/Supervisor of Education Programs (K-8), Milltown Public Schools, Milltown, NJ 08850.
1993 - 2000	Director of Student Services, Bedminster Township Public School, Bedminster, NJ. Guidance, Special Education, §504, Basic Skills Improvement, G&T, School Health, Reading Recovery, ESL. Grants, Crisis Management Team
1990 - 2001	Assistant Professor, Special Education, The College of New Jersey, Trenton, NJ. Full time: graduate and undergraduate courses in Special Education, student teacher supervision (1990-93). Part time Adjunct Faculty (1994-2001).
1990 - 1993	Learning Disabilities Teacher-Consultant (.4), Knowlton Twp. Elementary School, Knowlton, NJ
1989 - 1990	Director of Special Services, Kinnelon Borough Public Schools, Kinnelon, NJ. Pre-K through Grade 12 Special Education, Child Study Teams, Speech and School Health Services.
1987 - 1989	Executive Director, Groves Learning Center, St. Louis Park, Minnesota. C.S.A. of Groves Academy, Diagnostic Center, Preschool and Outreach Programs for persons with Learning Disabilities ages 2 ½ - adult.
1985 - 1987	Director of Student Services, Chatham Twp. Public Schools, Chatham, NJ. K-12 Special Education, Child Study Teams, Guidance, Speech and Health.

1984 - Present	Due Process Hearing Panel Member, Delaware Department of Education.
1978 - 1985	Director of Education, The Midland School, North Branch, NJ. Program Director for large private school for students with disabilities in the moderate to severe range. Coordinated public school child study team involvement.
1972 - 1978	Teacher, Administrator, Principal, The Summit School, Levittown, PA. Private school for children classified with Specific Learning Disabilities.

Professional Activities

2001 – 2004	Board of Directors, International Council for Exceptional Children.
1996 - 2000	Item Writing Specialist, Special Education Praxis, Educational Testing Service, Princeton, New Jersey). Member of the National Advisory Committee for the Praxis Examinations in Special Education.
1991 - 2001	Governor, NJ Federation, Council for Exceptional Children (CEC). (Past President, Treasurer, “Representative” and Student Advisor at the state level).
1990	Initial Accreditation Team Member, North Central Association.
1983 - Present	Due Process Hearing Panel Member, Delaware Department of Education.
1984	Private School Monitoring Team Member, NJ Department of Education
1981 -1984	Team Coordinator, Special Education Parent Training Group.
1979 - 1984	Somerset County Career Education Coordinating Council. President two terms.

Publication

1993	Tarriff, Harold M. & Levine, Valerie, <i>Involving Divorced Parents</i> , Principal, 73:1, September, 1993, pp. 37-40
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Education

1981	Ed.D., Special Education/School Administration, Rutgers University
1973	M.A.T., Special Education, Trenton State College (The College of NJ)
1970	B.A., History/Education, Brooklyn College of the City University of NY

Military

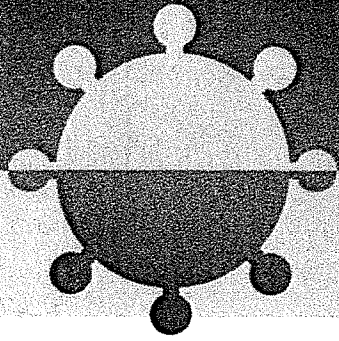
1970 - 1972	U.S. Navy (Reserve), USS ENTERPRISE
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Certifications

New Jersey:	School Administrator (10/82), Principal/Supervisor (10/80), LDT-C (7/85), Teacher of the Handicapped (8/73).
Pennsylvania:	Mentally Retarded (1972).

EXHIBIT “F”

EXHIBIT “F”



Coronavirus COVID-19

BC Centre for Disease Control | BC Ministry of Health



HOW YOU CAN SLOW THE SPREAD OF COVID-19

Take care of others by taking care of yourself.

Wash your hands, don't touch your face, and stay home if you are sick.

Stay at Home and Physically Distance

Stay at home whenever you can. Maintain 2 meters distance from those outside of your household.

Caring for Children with COVID-19

April 3, 2020

By Sarah Silverberg (MD) and Laura Sauvé (MD, MPH, FRCPC)

Key Points

- COVID-19 virus has a very low infection rate in children estimated at 1-5% worldwide.
- The majority of cases in children are the result of a household transmission by droplet spread from another family member with symptoms of COVID-19.
- Children who are infected with the virus and develop COVID-19 have milder symptoms if any, and very few become critically ill.
- Children with COVID-19 illness typically have a fever, dry cough and fatigue. Some may also experience nausea, vomiting, abdominal pain and diarrhea.
- Unlike adults the rates of transmission are unknown. There is no documented evidence of child-to-adult transmission. There are no documented cases of children bringing an infection into the home, from school or otherwise. This is likely the result of the limited number of cases and the mild symptoms in those who do have COVID illness.
- There is no conclusive evidence that children who are asymptomatic pose a risk to other children or to adults.
- There is no evidence indicating children of HCWs are at increased risk of COVID-19 infection than children of non-HCWs. This is likely due to the careful monitoring of HCWs for symptoms and follow-up of their household contacts.
- Like adults, children with any common cold, influenza or COVID-19 like symptoms should stay home and isolate for 10 days following onset of symptoms and until symptoms resolve.
- More research is needed to fully characterize infection, transmission and COVID-19 disease in children.

COVID-19 Illness in Children

1. Case counts of SARS-CoV2 infection and COVID-19 illness in children are low, representing only 1-5% of confirmed cases worldwide.
2. The severity of disease in children appears to be lower, with only a few documented cases of severe illness and/or death. Younger infants (those <1 year of age) have the highest rates of severe or critical illness.
3. Children are more likely to have few, if any symptoms. Up to 32% of children have been asymptomatic with presumed or confirmed COVID-19.
4. Typically, children with COVID-19 have a fever, dry cough and fatigue. In rare cases, dyspnea and respiratory compromise appear after a week of disease progression. These are associated with systemic symptoms including malaise, restlessness, and poor appetite.



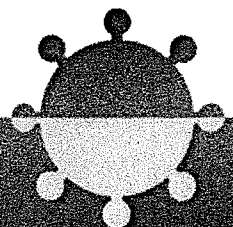
5. Some children experience GI symptoms, including abdominal discomfort, nausea, vomiting, abdominal pain and diarrhea.

Children and Infectivity

1. The majority of children with COVID-19 have a positive household contact.
2. The incubation period in children is approximately two days, with a range of 2-10 days (similar to adults). The mean incubation period between household exposure and pediatric symptom onset is approximately 1 day longer than observed in adult cases.
3. Children typically have negative swabs within 6-22 days of symptom onset, but often not until 2 weeks' time. Children have been found to have high viral loads despite mild symptoms, with prolonged shedding in nasal secretions.
4. As a result of the lower symptom burden, the rates of asymptomatic transmission or transmission with mild symptoms are unknown.
5. There is no documented evidence of child-to-adult transmission of SARS-CoV2. This is different than outbreaks of other viruses such as Influenza where children have been found to have a high rate of infection outside of the household and significant inter-generational transmission.
6. It is unlikely the children of health care workers have more frequent COVID-19 than other children, however, no evidence is available.

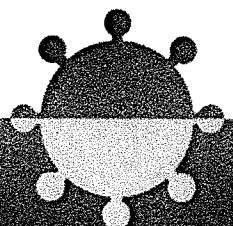
Recommendations for care for children with suspected or confirmed cases of COVID-19

1. Children are at a lower risk of developing COVID-19, including developing severe disease. Most children who have COVID-19 can be cared for at home, with supportive care performed by their parents.
2. Children under 1 year of age and those who are immunocompromised or have pre-existing pulmonary conditions are at a higher risk of severe disease.
3. As for all members of the community at this time, children should physically distance themselves as much as possible outside of the family unit.
4. Children, and particularly young children, who develop fever, cough or shortness of breath should be evaluated, as influenza as well as other viral illnesses are still circulating in B.C. Symptomatic children should be cared for using droplet and contact precautions (with airborne precautions if aerosol generating medical procedures are needed).
5. While evidence is limited at this time, children with COVID-19 may shed the virus for longer than adults.



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April 3, 2020

Caring for Children with COVID-19 by Dr. S. Silverberg & Dr. L. Sauvé



Ministry of
Health



BC Centre for Disease Control

**If you have fever, a new cough, or are
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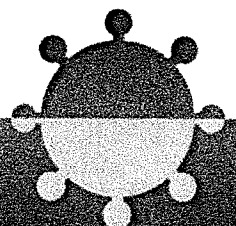


EXHIBIT “G”

EXHIBIT “G”

COVID-19 in schools and early childhood education and care services – the Term 2 experience in NSW

Prepared by the National Centre for Immunisation Research and Surveillance (NCIRS)
 31 July 2020

Overview

- This report provides an overview of investigation into all COVID-19 cases in the state of New South Wales (NSW), Australia in all schools and early childhood education and care (ECEC) services between 10 April 2020 and 3 July 2020 (school term 2 of the academic year).
- 6 individuals (4 students and 2 staff members) from 6 educational settings (5 schools and 1 ECEC service) were confirmed as primary COVID-19 cases who had an opportunity to transmit the SARS-CoV-2 virus to others in their school or ECEC service.
- 521 individuals (459 students and 62 staff members) were identified as close contacts of these primary 6 cases.
- No secondary cases were reported in any of the 6 educational settings.
- In Term 2 no student or staff member contracted COVID-19 from a school or ECEC setting.
- For details on Term 1 data refer to NCIRS report [here](#) or publication in The Lancet Child and Adolescent Health [here](#).

Background

Our first report of schools and early childhood education and care (ECEC) services reported 27 primary cases in school term 1 (28 January to 9 April 2020), coinciding with the emergence of COVID-19 pandemic and the first wave in New South Wales, Australia. By 6 April, incidence of COVID-19 was declining and was very low from 20 April (less than 10 cases/day) due to increased availability of testing coupled with public health mitigation strategies such as restrictions on population mobility, home or hotel isolation of returning travellers and increased hygiene measures.

Schools reopened on 29 April, allowing for vulnerable students and children of essential workers to return onsite. Between 29 April and 22 May there was an incremental increase in the number of students returning to school, and full face-to-face teaching commenced on 25 May. ECEC services remained open throughout the autumn school holidays and into Term 2.

The National Centre for Immunisation Research and Surveillance (NCIRS), with the support of the NSW Ministry of Health and NSW Department of Education, continued surveillance of SARS-CoV-2 transmission in educational settings. Through this investigation, we aimed to monitor the transmission of SARS-CoV-2 in schools and childcare centres in NSW. This report summarises the preliminary findings of this work in NSW ECEC services and primary and high schools.

Methods

COVID-19 is a notifiable disease in Australia. When a person is diagnosed with COVID-19 a public health response is initiated that includes follow up of each case to identify their close contacts and dates of exposure to the person (case) while infectious. A 'close contact' is defined as a person who has been in face to face contact for at least 15 minutes or in the same room for 2 hours with a case while infectious. Once close contacts are identified, they are required to enter home quarantine for 14 days from the date of last exposure to the infectious case, watch for any symptoms and if they become unwell, have a nose/throat swab taken to test for COVID-19. NSW Health and NCIRS followed up all close contacts of COVID-19 cases in the schools and ECEC services that an adult or child with COVID-19 attended while infectious. For schools and ECEC services, all close contact staff and students who agreed

to participate in enhanced surveillance also had all or combination of the following: a) filled out a symptom questionnaire; b) were swabbed to test for COVID-19 within the first 2 weeks after the last contact with the case, irrespective of whether they had symptoms; and c) had a blood sample taken to detect antibodies to the SARS-CoV-2 virus (which is evidence of an immune response to infection) at 4 to 6 weeks after the exposure. Some primary cases were reviewed by an expert panel once additional test results (repeat swabs and antibody testing 4 weeks after a positive swab) and data (evidence of any epidemiological link or secondary transmission) became available.

Results

10 educational settings (three high schools, six primary schools and one ECEC service) were investigated for having a case with COVID-19 in staff member or student who attended while infectious. Three primary cases from three of these educational settings were reviewed by an expert panel and deemed to be not true COVID-19 cases and one case from one educational setting was thought to have had COVID-19 several months prior to diagnosis. Public health measures were implemented and these educational settings participated in enhanced surveillance prior to the expert panel review.

In the remaining six educational settings (two high schools, three primary schools and one ECEC service) there were a total of six COVID-19 cases (two staff members, four students/children). The public health staff identified 521 close contacts of these six cases (459 students/children and 62 staff members). In total, 61% (n=319) of the close contacts had a nose/throat swab taken and 8% (n=44) underwent antibody testing. There were no secondary cases identified.

High schools

A total of two COVID-19 primary cases (2 students) were identified who had attended two high schools while infectious. The total number of close contacts in these two high schools was 165 students and 23 staff members (188 close contacts total). Nose/throat swabs were taken from 55% (n=103) of contacts, all of whom tested negative, as shown in Figure 2.

Primary schools

A total of three primary cases (one student and two staff members) were identified in three primary schools. The total number of close contacts in these three primary schools was 210 students and 21 staff members (231 close contacts total). Nose/throat swabs were taken from 57% (n=132) of contacts. Antibody testing was performed on 39 cases. Overall, as shown in Figure 3, no individuals were identified to have been infected following close contact with a school case in these three primary schools. SARS-CoV-2 antibodies were not detected in all 39 samples.

ECEC services

One primary case (one child) was identified in one ECEC service. The total number of close contacts was 84 students and 18 staff members (102 close contacts total). Nose/throat swabs were taken from 82% (n=84) of contacts. Six of the 24 children who shared the same class underwent SARS-CoV-2 antibody tests, all of which were negative. Overall, as shown in Figure 4, no individuals were identified to have been infected following close contact with an ECEC case.

Figure 1: NSW schools and ECEC services with a COVID-19 primary case(s) from Term 2

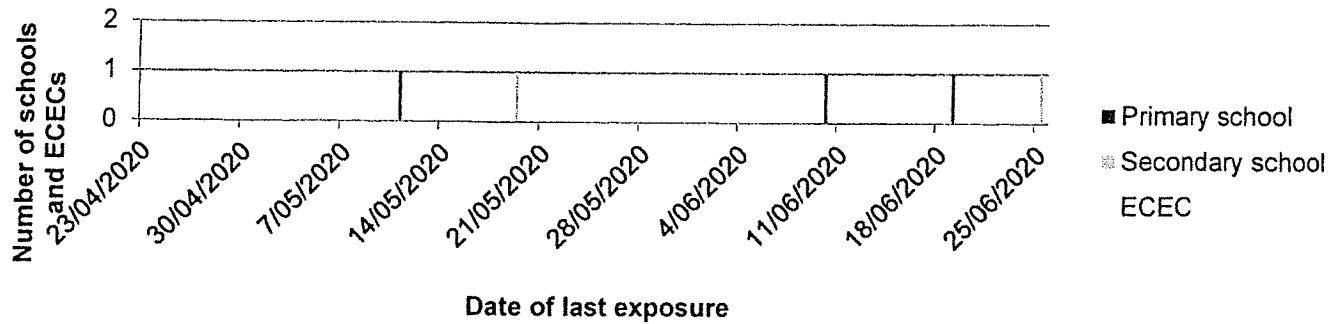


Figure 2: Cases and close contacts among staff members and students in 2 NSW high schools in Term 2 showing no transmission

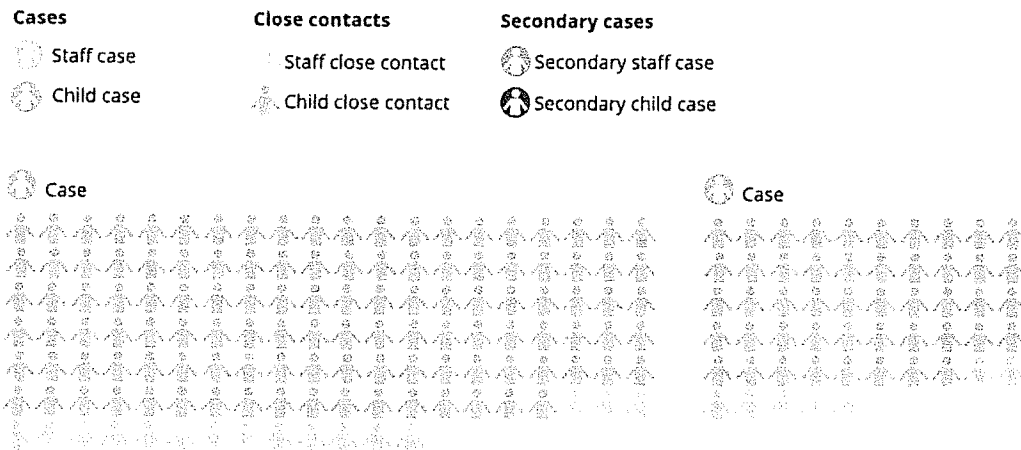


Figure 3: Cases and close contacts among teachers and students in 3 NSW primary schools in Term 2 showing no transmission

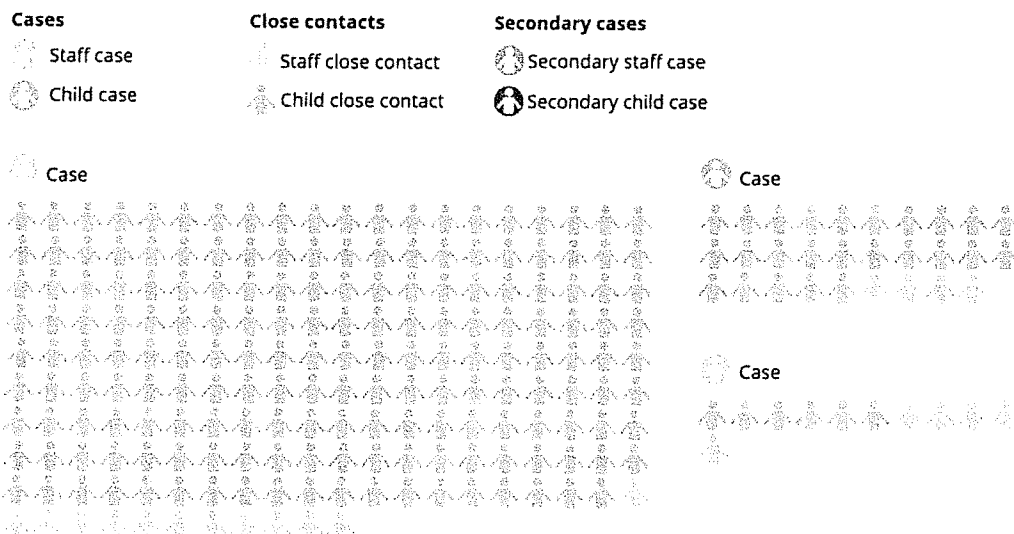
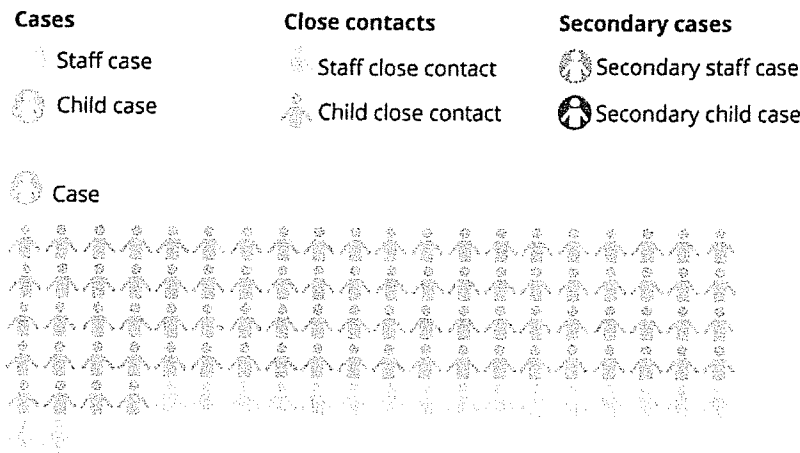


Figure 4: Cases and close contacts among staff and children in 1 NSW ECEC service in Term 2 showing no transmission



Excluded cases

One high school and two primary schools had possible COVID-19 cases and underwent public health response and enhanced surveillance. After additional information was received and additional testing (including antibody testing in some cases) and review undertaken, these cases were deemed by an NSW Health expert panel to have had false positive results. All these cases had no epidemiological link to another COVID-19 case and occurred while community transmission in NSW was negligible.

One primary school had a case that was later deemed to have been historical. That person's SARS-CoV-2 infection was deemed likely to have occurred 3 months earlier (based on epidemiological data and the person's antibody response to the virus).

However, given the importance of ensuring a timely public health response, those schools did undergo contact tracing, cleaning and self-isolation of close contacts (441 students and 22 staff members). A total of 216 close contacts (47%) had a nose/throat swab taken and 54 (12%) underwent blood tests for SARS-CoV-2 antibodies. All of the tests were negative. As a result, data from these schools were excluded from this report.

Conclusion

Our investigation of COVID-19 cases in schools and ECEC services continued in Term 2, between 10 April and 3 July. Because of effective public health mitigation strategies, community circulation of SARS-CoV-2 was extremely low in NSW. Schools remained open throughout the term (29 April to 3 July) following a graded return to face-to-face teaching, with full face-to-face learning resuming by week 5 (25 May) of Term 2. Schools and ECEC services were not required to follow all adult physical distancing guidelines but to follow good hygiene practices and additional cleaning in line with guidance from the Australian Health Protection Principal Committee (AHPPC) and NSW Health.

There were three primary schools, two high schools and one ECEC service with primary cases of COVID-19, of which two were staff members and four were students/children. There were a total of 521 close contacts (62 adults and 459 students/children) with no evidence of secondary transmission.

Our previous investigation in Term 1 2020, published in [The Lancet Child and Adolescent Health](#), showed that transmission in educational settings is limited. Ongoing surveillance is important as outbreaks within educational settings have been shown to occur, especially when infection is unrecognised and exposure is prolonged. Our data from Term 2 highlight that with community awareness, implementation of hygiene and mitigation strategies, staying at home when symptomatic, early testing and contact tracing, transmission can continue to be limited in these settings.

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We would like to thank all schools, staff and student contacts and their families who participated in this investigation, especially those who assisted with the enhanced investigation.

The following people have contributed to the COVID-19 schools transmission investigation project:

NCIRS core clinical and epidemiological team: Kristine Macartney, Nicholas Wood, Noni Winkler, Helen Quinn, Archana Koirala, Lucy Deng, Catherine Glover and Alexis Pillsbury

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EXHIBIT “H”

EXHIBIT “H”



Transmission of SARS-CoV-2 in Australian educational settings: a prospective cohort study

Kristine Macartney, Helen E Quinn, Alexis J Pillsbury, Archana Koirala, Lucy Deng, Noni Winkler, Anthea L Katelaris, Matthew V N O'Sullivan, Craig Dalton, Nicholas Wood, and the NSW COVID-19 Schools Study Team*

Summary

Background School closures have occurred globally during the COVID-19 pandemic. However, empiric data on transmission of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) among children and in educational settings are scarce. In Australia, most schools have remained open during the first epidemic wave, albeit with reduced student physical attendance at the epidemic peak. We examined SARS-CoV-2 transmission among children and staff in schools and early childhood education and care (ECEC) settings in the Australian state of New South Wales (NSW).

Methods Laboratory-confirmed paediatric (aged ≤ 18 years) and adult COVID-19 cases who attended a school or ECEC setting while considered infectious (defined as 24 h before symptom onset based on national guidelines during the study period) in NSW from Jan 25 to April 10, 2020, were investigated for onward transmission. All identified school and ECEC settings close contacts were required to home quarantine for 14 days, and were monitored and offered SARS-CoV-2 nucleic acid testing if symptomatic. Enhanced investigations in selected educational settings included nucleic acid testing and SARS-CoV-2 antibody testing in symptomatic and asymptomatic contacts. Secondary attack rates were calculated and compared with state-wide COVID-19 rates.

Findings 15 schools and ten ECEC settings had children ($n=12$) or adults ($n=15$) attend while infectious, with 1448 contacts monitored. Of these, 633 (43.7%) of 1448 had nucleic acid testing, or antibody testing, or both, with 18 secondary cases identified (attack rate 1.2%). Five secondary cases (three children; two adults) were identified (attack rate 0.5%; 5/914) in three schools. No secondary transmission occurred in nine of ten ECEC settings among 497 contacts. However, one outbreak in an ECEC setting involved transmission to six adults and seven children (attack rate 35.1%; 13/37). Across all settings, five (28.0%) of 18 secondary infections were asymptomatic (three infants [all aged 1 year], one adolescent [age 15 years], and one adult).

Interpretation SARS-CoV-2 transmission rates were low in NSW educational settings during the first COVID-19 epidemic wave, consistent with mild infrequent disease in the 1.8 million child population. With effective case-contact testing and epidemic management strategies and associated small numbers of attendances while infected, children and teachers did not contribute significantly to COVID-19 transmission via attendance in educational settings. These findings could be used to inform modelling and public health policy regarding school closures during the COVID-19 pandemic.

Funding NSW Government Department of Health.

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Introduction

The global COVID-19 pandemic has been addressed through implementation of aggressive public health measures focused on restricting mobility and ensuring physical distancing. Most countries have enforced school closures to mitigate transmission.¹ However, evidence suggests that COVID-19 is less prevalent in children and generally causes milder illness, when compared with adults.²⁻⁶ The extent to which children are asymptotically infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), and what role they have in virus transmission, particularly in schools, remains unclear. It appears children are less likely to be the primary infection source in household clusters, compared with adults.^{7,8}

School closures might be effective in controlling pandemic influenza because children are important in

transmission, and have high hospitalisation rates and severe outcomes from influenza.^{9,10} However, school closures have significant social and economic impacts on children and families, with widespread implications for national and global economies.¹¹ Although past experiences of school closures might inform expectations of social and economic impacts, modelled effects of school closures have varied depending on the assumptions regarding children's role in SARS-CoV-2 transmission.¹² In China, schools were already closed for school holidays and remained so for a number of months,¹³ and, to date, data on COVID-19 from school or childcare settings are scarce.¹⁴⁻¹⁶

Australian strategies to delay and reduce the impact of COVID-19 following the first case in a traveller from Wuhan, China, on Jan 25, 2020, included thorough incoming traveller and community surveillance, high

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*Collaborators listed at the end of the Article

National Centre for Immunisation Research and Surveillance, The Children's Hospital at Westmead, Westmead, NSW, Australia (Prof K Macartney MD, H E Quinn PhD, A J Pillsbury MPhil App Epi, A Koirala MBChB, L Deng MBBS, N Winkler MPHMT, N Wood PhD); Faculty of Medicine and Health, The University of Sydney, Camperdown, NSW, Australia (Prof K Macartney, H E Quinn, A J Pillsbury, A Koirala, L Deng, M V N O'Sullivan PhD, N Wood); Nepean Hospital, Penrith, NSW, Australia (A Koirala); Australian National University, Canberra, ACT, Australia (N Winkler); Western Sydney Public Health Unit, Western Sydney Local Health District, Parramatta, NSW, Australia (A L Katelaris MD); Institute for Clinical Pathology and Microbiology, NSW Health Pathology, Westmead, NSW, Australia (M V N O'Sullivan); Hunter New England Local Health District, NSW Health, Wallsend, NSW, Australia (C Dalton MMSc); and School of Medicine and Public Health, University of Newcastle, Callaghan, NSW, Australia (C Dalton)

Correspondence to:
Prof Kristine Macartney,
National Centre for Immunisation Research and Surveillance, The Children's Hospital at Westmead and The University of Sydney, Westmead, NSW 2145, Australia
kristine.macartney@health.nsw.gov.au

Articles

Research in context

Evidence before this study

Data on COVID-19 in schools are scarce, particularly given many schools have been closed in response to the pandemic. We searched PubMed and medRxiv on June 5, 2020, for studies published from Jan 1, 2020, reporting transmission of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in educational settings since the start of the outbreak in China, using the search terms COVID-19, SARS-CoV-2, transmission, schools, and children, as well as manually searching the references used in other relevant papers. Terms were searched individually and in combination as necessary, and no language restrictions were used. We identified some studies that included mention of student cases as part of a larger outbreak. We identified one article that detailed transmission in a school setting in Ireland in children aged 10 years and older; however, this study had few participants, a short study period (10 days), no data on testing rates, or serological testing in follow-up.

Added value of this study

We examined SARS-CoV-2 transmission among children and adults in 25 educational settings (primary and secondary schools, and early childhood education and care settings) together with the rate and characteristics of all paediatric COVID-19 cases in the Australian state of New South Wales over a 3-month period. We found a low incidence of

attendance of children and staff members with COVID-19 at educational facilities, and low rates of SARS-CoV-2 transmission in the 15 schools and childcare settings where a case occurred. The exception was an outbreak in a childcare centre. The use of enhanced surveillance and serological testing of close contacts within the educational setting enabled detection of a small number of asymptomatic SARS-CoV-2 secondary infections in schools and the childcare setting.

Implications of all the available evidence

This is the first comprehensive population-based assessment of SARS-CoV-2 transmission among children and adults in educational facilities. Our results show that where effective case-contact testing and epidemic control strategies exist for the population, children and teachers did not contribute significantly to COVID-19 transmission via attendance in educational settings. This study will assist modellers, policy makers, health-care providers, and the public to understand the risk of COVID-19 occurring in educational facilities and help in decision making around school closures and reopenings. Our data also provide insights that can assist in comparing the economic and community costs of school closures against the potential benefits of reduced virus transmission.

testing rates, rapid case isolation and contact tracing, and border closures and quarantine.¹⁷ Major changes in population behaviour and a low infection rate have ensued.¹⁷ Consistent with national policy, most of Australia's eight states and territories, including the most populous state New South Wales (NSW), kept schools open during the pandemic.¹⁸ In NSW, guidance for physical distancing, hygiene measures, and educational facility cleaning was issued. At the epidemic peak on March 23, 2020, distance (online) learning was implemented, and physical attendance recommended to be limited to children who needed to attend in person (eg, children of health-care workers or those without other care options).¹⁸ Early childhood education and care (ECEC) settings for children aged 6 weeks to 5 years remained open.

This study aimed to prospectively examine SARS-CoV-2 transmission among children and adults in educational settings and to provide real-time evidence for decision making on school-based policies related to COVID-19. We secondarily aimed to examine the rate and characteristics of NSW paediatric COVID-19 cases in both educational settings and the wider population.

Methods

Study setting

This study was done in NSW, Australia, population 8·1 million, of which 1·8 million residents (23·0%) are

aged 18 years or younger.¹⁹ Among laboratory-confirmed COVID-19 cases in NSW, we identified all children (aged ≤ 18 years) and staff who attended school or ECEC settings while considered infectious (defined as 24 h before symptom onset based on national guidelines during the study period²⁰). All NSW schools ($n=3103$; public, independent, and Catholic) providing either primary (ages approximately 5–12 years), or secondary school education (ages approximately 13–18 years), or both, and any ECEC setting (approximately $n=4600$; ages approximately 6 weeks to 5 years) were eligible for inclusion. The estimated numbers of school staff and enrolled students state wide for 2020 were 143 084 and 1 232 367, respectively. Estimates of numbers of ECEC setting staffing and enrolment were not available.

The study period for index case identification was from Jan 25 (first NSW COVID-19 case notification) to April 9, 2020 (when the 10-week school term 1 ended and scheduled holidays commenced). From March 22, 2020, children were encouraged to stay home for distance learning until term 1 end; however, schools remained open if home schooling was not an option. The follow-up period for close contacts of COVID-19 cases extended to May 1, 2020.

The study was commissioned by the NSW Department of Health under the Public Health Act 2010 (NSW) and

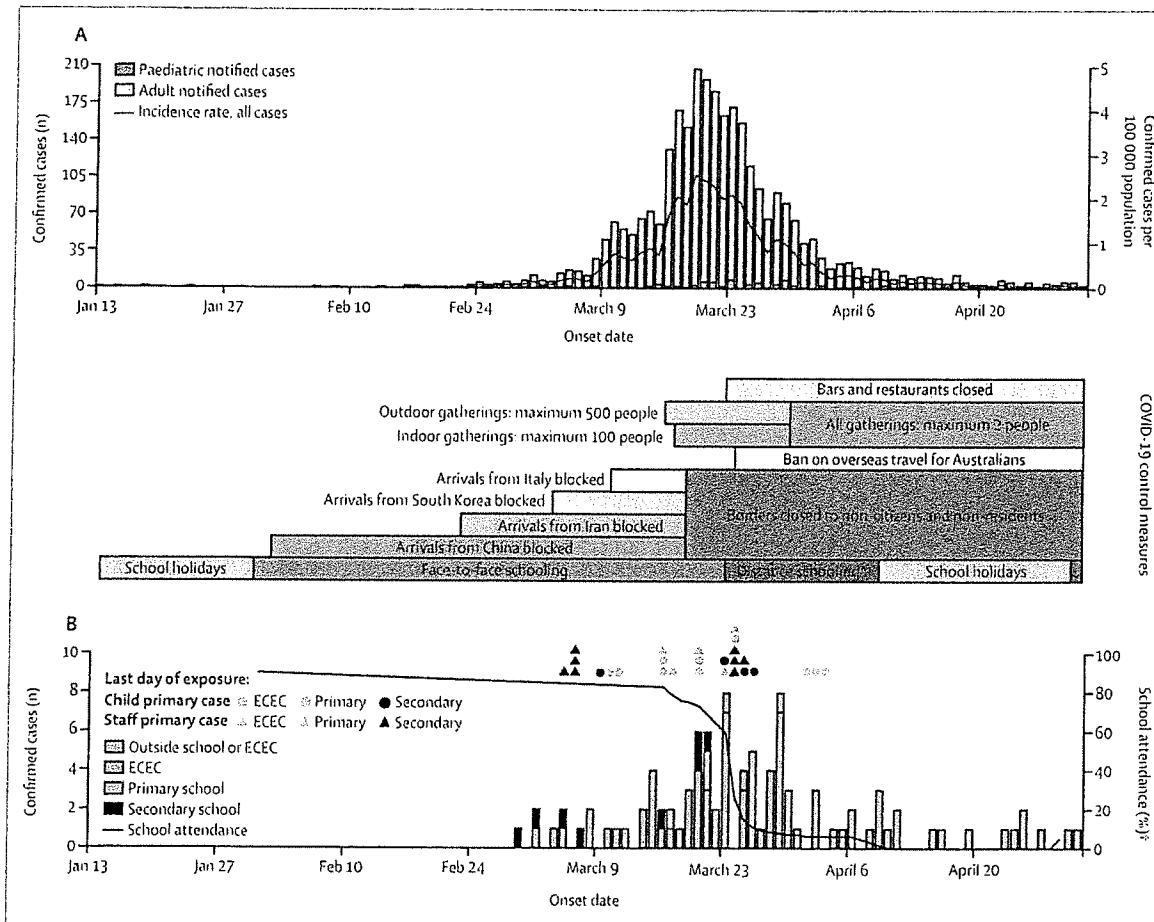


Figure: Onset date of total (A) and paediatric (B) confirmed COVID-19 cases in NSW, Jan 13–May 1, 2020, relative to control measures and school attendance. Nucleic acid testing used for confirmation of severe acute respiratory syndrome coronavirus 2 infection, and definition of COVID-19 case. If people were asymptomatic, specimen positive date was used. ECEC=early childhood education and care settings. NSW=New South Wales. *Distance (remote) learning recommended, but schools also remained open for face-to-face attendance as required. After school holidays, preference for distance learning continued for 2 weeks before resumption of full face-to-face learning. †Excluding ECEC.

implemented in conjunction with approval and support from the NSW Department of Education.

Population-level data

All laboratory-confirmed COVID-19 cases in NSW, using SARS-CoV-2 nucleic acid testing,²⁰ were recorded and monitored daily using the NSW Notifiable Conditions Information Management System. All cases (or their parent or carers) were interviewed at diagnosis to determine links to known COVID-19 cases, ascertain movements, and identify close contacts while infectious, including at educational facilities. Descriptive data for all laboratory-confirmed cases with onset from Jan 13 to May 1, 2020, were analysed.

School and ECEC setting case and close contact definitions and management

A COVID-19 school or ECECs index case was defined as the first identified laboratory-confirmed case who attended the facility while infectious. A school or ECEC

setting primary case was defined as the initial infectious case or cases in that setting, and might or might not have been the index case. A secondary case was defined as a close contact with SARS-CoV-2 infection (detected through nucleic acid testing or serological testing, or both), which was considered likely to have occurred via transmission in that educational setting (based on no other epidemiological link or risk factor). Data on all cases' potential sources of infection and close contacts were obtained from interviews with cases, families, and school officials, and review of school timetables. Close contacts were defined as children or staff with face-to-face contact for at least 15 min, or who shared a closed indoor space for at least 40 min (generally the same class or lesson, typically consisting of 20–30 students) with a case during their infectious period. All close contacts quarantined at home for 14 days, had regular text message or telephone call contact to enquire about symptoms, and were instructed to be tested if they developed COVID-19-related symptoms at designated

Articles

	Sex		Age group						Existing medical condition	Hospitalisation	ICU admission	Total (rate per 100 000 population)
	Male	Female	0 to <5 years	5 to <13 years	13 to ≤18 years	19 to ≤39 years	40 to ≤59 years	≥60 years				
Paediatric cases												
Within school or ECEC	13 (68%)	6 (32%)	9 (47%)	3 (16%)	7 (37%)	..	..	..	5 (26%)	3 (16%)	0	19
Primary case	6 (50%)	6 (50%)	3 (25%)	2 (17%)	7 (58%)	..	..	..	4 (33%)	3 (25%)	0	12
Secondary case	7 (100%)	0	6 (86%)	1 (14%)	0	..	..	..	1 (14%)	0	0	7
Outside school or ECEC	35 (44%)	43 (55%)	11 (14%)	27 (34%)	40 (51%)	..	..	..	9 (12%)	6 (8%)	1 (1%)	78
All	48 (49%)	49 (51%)	21 (21%)	30 (31%)	47 (48%)	..	..	..	14 (14%)	9* (9%)	1 (1%)	97 (5)
Adult cases												
Within school or ECEC	1 (5%)	21 (95%)	..	..	..	12 (55%)	9 (41%)	1 (5%)	4 (18%)	4 (18%)	2 (9%)	22
Primary case	1 (7%)	14 (93%)	..	..	..	8 (53%)	6 (40%)	1 (7%)	3 (20%)	2 (13%)	0	15
Secondary case	0	7 (100%)	..	..	..	4 (57%)	3 (43%)	0	1 (14%)	2 (29%)	2 (29%)	7
Outside school or ECEC	1450 (50%)	1463 (50%)	..	..	..	1156 (40%)	821 (28%)	937 (32%)	849 (29%)	296 (10%)	75 (3%)	2914
All	1451 (49%)	1484 (51%)	..	..	..	1168 (40%)	830 (28%)	938 (32%)	853 (29%)	300 (10%)	77 (3%)	2936 (47)
Data are n (%), unless otherwise stated. ECEC=early childhood education and care setting. ICU=intensive care unit. NSW=New South Wales. *Most were hospitalised early in the epidemic response for isolation purposes only and had mild symptoms.												
Table 1: Demographic and clinical data on all paediatric and adult COVID-19 cases in NSW, Australia, from Jan 13 to May 1, 2020, including links to an educational setting as either a primary or secondary case												

COVID-19 testing facilities. Schools and ECEC settings closed temporarily on case notification and generally reopened within 24–48 h after environmental cleaning and public health measures were instituted. We reviewed data for all close contacts for a minimum of 30 days from last exposure to the primary case, to ensure that any potential new cases were identified and investigated.

Targeted enhanced school and ECEC setting-based investigations

Selected educational settings were offered participation in enhanced investigations, in addition to routine public health management if logistically feasible and authorisation was provided by local public health and education authorities. Close contacts or their parents or carers were provided with information on enhanced investigations and informed consent was obtained (appendix). Participants could opt out at any time.

Enhanced investigations of close contacts included a survey requesting more details on extent of contact with the case, and symptoms before and during quarantine; upper respiratory tract (nasopharyngeal) swab for nucleic acid testing 5–10 days after last case contact if not previously collected and irrespective of symptoms; and serological testing after day 21 following last case contact. Swabs were collected at home either by visiting health-care workers, or by the case or parent or carer using written and video instructions. Blood was collected at

home visits, dedicated school-based collection days, or pathology collection centres.

Laboratory testing

Ten public and three private NSW laboratories were validated and did SARS-CoV-2 nucleic acid testing during the study period. Blood and nasopharyngeal specimens for enhanced surveillance were tested by the NSW Pathology reference laboratory, the Institute for Clinical Pathology and Medical Research. Nucleic acid testing was done using an in-house real-time PCR as previously described.²¹ SARS-CoV-2-specific IgG, IgA, and IgM detection was done using an indirect immunofluorescence assay (IFA) that has a sensitivity compared with nucleic acid testing of detecting any of SARS-CoV-2-specific IgG, IgA, or IgM when samples were collected at least 14 days after illness onset of 91.3% (95% CI 84.9–95.6) and specificity of 98.9% (95% CI 98.4–99.3%; MVNO, personal communication).

Data analyses

Percentages were calculated to describe demographic, laboratory, and epidemiological characteristics of all NSW cases, school or ECEC setting cases, and close contacts. Attack rates were calculated for different transmission scenarios and with denominators including all close contacts or only close contacts who were tested for SARS-CoV-2. School attendance data were obtained from the NSW Department of Education. Population

See Online for appendix

	Primary cases			Days when contacts' NAT done post last exposure*	Child close contacts				Staff close contact			
	Age (years), sex (M or F)	Source of infection (all acquired locally)	Days infectious at school†		Age (years)	n	Contacts' NAT done‡	NAT positive of contacts tested‡	Age (years)	n	Contacts' NAT done‡	NAT positive of contacts tested‡
SS												
SS 1	16, M	Household	4	3 (2-5)	16 (16-16)	58	19 (33%)	0	51 (48-53)	11	2 (18%)	0
SS 2‡	14, M; 15, F	Household	Unknown§; 5	5 (3-8)	15 (15-15)	193	117 (61%)	0	41 (27-49)	18	12 (67%)	0
SS 3	12, F	Household	4	4 (4-5)	12 (12-12)	66	20 (30%)	0	38 (34-39)	11	5 (46%)	0
SS 4	48, F	Source unknown	1	6 (5-7)	15 (13-15)	46	15 (33%)	0	47 (42-53)	11	6 (54%)	0
SS 5	53, F	Source unknown	1	4 (4-4)	14 (13-15)	4	1 (25%)	0	38 (36-46)	6	5 (83%)	0
SS 6‡	13, F; 15, M	Household	5; 2	10 (8-13)	15 (13-15)	65	13 (20%)	0	41 (30-45)	9	2 (22%)	0
SS 7	16, M	Household	3	11 (11-12)	16 (16-16)	131	9 (7%)	0	55 (48-64)	8	1 (13%)	0
SS 8	18, M	Household	2	14 (11-14)	17 (16-17)	8	1 (13%)	0	44 (31-56)	7	3 (43%)	0
SS 9	34, F	Source unknown	1	NA	16 (16-16)	10	0	0	NA	0	0	0
SS 10	65, F	Source unknown	4	12 (10-15)	13 (13-15)	19	1 (5%)	0	50 (44-53)	15	3 (20%)	0
All SSs	8, 4¶	NA	3 (2-4)||	5 (4-8)	15 (14-16)	600	196 (33%)	0	44 (34-53)	96	39 (41%)	0
PS												
PS 1‡**	46, F	Non-household contact	1	6 (6-7)	7 (6-10)	66	28 (42%)	1 (4%)	45 (37-52)	15	8 (53%)	1 (13%)¶
PS 2†	10, F	Source unknown	10	12 (11-12)	10 (10-10)	43	6 (14%)	0	60 (60-61)	2	1 (50%)	0
PS 3	31, F	Household	3	7 (7-8)	10 (10-11)	15	1 (7%)	0	32 (31-47)	7	5 (71%)	0
PS 4	21, M	Non-household contact	4	7 (5-8)	7 (5-9)	27	4 (15%)	0	24 (23-24)	2	2 (100%)	0
PS 5	19, F	Non-household contact	5	7 (6-10)	7 (6-8)	28	3 (11%)	0	25 (20-29)	13	4 (31%)	0
All PSs	1, 4¶	NA	4 (3-5)||	6 (6-11)	9 (7-10)	179	42 (23%)	1 (2%)	36 (26-52)	39	20 (51%)	1 (5%)
ECEC												
ECEC 1‡	36, F	Non-household contact	1	10 (8-13)	4 (4-4)	16	16 (100%)	0	NA	0	0	0
ECEC 2	50, F	Non-household contact	2	5 (3-6)	4 (3-4)	43	18 (42%)	0	47 (42-50)	6	2 (33%)	0
ECEC 3‡	56, F	Acquired locally, source unknown	9	7 (7-9)	2 (1-3)	151	79 (52%)	0	30 (26-36)	25	19 (76%)	0
ECEC 4	30, F	Source unknown	1	8 (7-8)	2 (1-3)	31	13 (42%)	0	32 (26-39)	9	2 (22%)	0
ECEC 5	3, F	Source unknown	1	18 (15-19)	3 (3-4)	34	1 (3%)	0	26 (22-32)	18	3 (17%)	0
ECEC 6‡	49, F	Source unknown	1	16 (14-17)	1 (2-3)	25	23 (92%)	6 (26%)	38 (31-43)	12	11 (92%)	6 (55%)
ECEC 7	2, M	Source unknown	1	17 (15-17)	3 (2-4)	43	11 (26%)	0	40 (38-50)	14	5 (36%)	0
ECEC 8	21, F	Non-household contact	2	4 (4-4)	N/A	0	0	0	31 (25-36)	15	9 (60%)	0
ECEC 9	1, F	Source unknown	1	3 (3-3)	1 (1-1)	8	5 (63%)	0	23 (20-31)	5	3 (60%)	0
ECEC 10	38, F	Source unknown	2	5 (5-7)	3 (2-3)	55	16 (29%)	0	29 (27-36)	24	9 (38%)	0
All ECEC	3, 7¶	NA	1 (1-2)||	8 (6-12)	3 (2-4)	406	182 (45%)	6 (3%)	34 (26-41)	128	63 (49%)	6 (10%)
All settings	12 (14), 15 (38)††	9 household; 6 non-household contact; 12 source unknown	2 (1-4)||	7 (5-10)	10 (3-15)	1185	420 (35%)	7 (2%)	37 (27-48)	263	122 (46%)	7 (6%)

Data are n; median (IQR); or n (%), unless otherwise stated. M=male, F=female. NAT=nucleic acid test. SS=secondary school. PS=primary school. NA=Not applicable. ECEC=early childhood education and care setting. NSW=New South Wales. *Day test done post last day of exposure (D0) to the infectious cases. †Close contacts were managed in home quarantine and instructed to be tested if symptoms developed; also includes some asymptomatic cases (see table 3). ‡Settings where enhanced surveillance was done (see table 3). §Unknown exposure duration as asymptomatic case. ¶Data are number of children, number of staff. ||Data are median (IQR). **The primary case notification was late after exposure and symptom onset and occurred shortly before notification of the secondary staff case. Close contact follow-up for the primary case was incomplete and probably reduced the total number of primary case contacts having an NAT test. Close contacts of the secondary case included the child who was a tertiary case in this setting (see table 3). ††Data are number of children (median), number of staff (median).

Table 2: Primary COVID-19 cases and close contacts who attended 25 educational settings from March 5 to April 9, 2020, in NSW, Australia

Articles

	Symptomatic (n=65)				Asymptomatic (n=223)				Symptoms unknown (n=352)*				Total secondary cases	Percentage of contacts tested
	n	NAT	Serology	Any test	n	NAT	Serology	Any test	n	NAT*	Serology	Any test		
Child contacts														
SS 2	20	0/19	1/16 (6%)	1/20 (5%)	90	0/51	0/52	0/74	83	0/47	0/3	0/47	1	73%
SS 6	4	0/4	0/3	0/4	43	0/5	1/36 (3%)	1/36 (3%)+	18	0/4	0/4	0/6	1	70%
PS 1	2	1/2 (50%)	1/2 (50%)	1/2 (50%)	18	0/18	0/13	0/18	46	0/8	0/1	0/8	1	42%
PS 2	1	0/1	0/1	0/1	8	0/1	0/6	0/6	34	0/4	0/8	0/12	0	44%
ECEC 1	0	0/0	0/0	0/0	0	0/0	0/0	0/0	16	0/16	0/5	0/16	0	100%
ECEC 3	21	0/18	0/4	0/20	22	0/6	0/7	0/11	108	0/55	0/4	0/59	0	60%
ECEC 6	7	3/6 (50%)	3/6 (50%)	4/7 (57%)	13	3/13 (23%)	2/8 (25%)	3/13 (23%)	5	0/4	0/2	0/4	7	96%
All	55	4/50 (8%)	5/32 (16%)	6/54 (11%)	194	3/94 (3%)	3/122 (3%)	4/158 (3%)	310	0/138	0/27	0/152	10	65%
Adult contacts														
SS 2	1	0/1	0/0	0/1	8	0/4	0/3	0/5	9	0/7	0/2	0/7	0	72%
SS 6	0	0/0	0/0	0/0	7	0/1	1/5 (20%)	1/5 (20%)	2	0/1	0/1	0/1	1	67%
PS 1	1	1/1 (100%)	0/0	1/1 (100%)	5	0/3	0/4	0/5	9	0/4	0/1	0/4	1	67%
PS 2	0	0/0	0/0	0/0	0	0/0	0/0	0/0	2	0/1	0/2	0/2	0	100%
ECEC 1	0	0/0	0/0	0/0	0	0/0	0/0	0/0	0	0/0	0/0	0/0	0	100%
ECEC 3	2	0/2	0/1	0/2	4	0/1	0/1	0/1	19	0/16	0/2	0/17	0	80%
ECEC 6	6	6/6 (100%)	2/2 (100%)	6/6 (100%)	5	0/4	0/2	0/4	1	0/1	0/1	0/1	6	92%
All	10	7/10 (70%)	2/3 (67%)	7/10 (70%)	29	0/13	1/15 (7%)	1/20 (5%)	42	0/30	0/9	0/32	8	77%
Total	65	11/60 (18%)	7/35 (20%)	13/64 (20%)	223	3/107 (3%)	4/137 (3%)	5/178 (3%)	352	0/168	0/36	0/184	18	67%

Data are n/N (% positive of those contacts tested), unless otherwise stated. NAT=nucleic acid test. SS=secondary school. PS=primary school. ECEC=early childhood education and care setting. NSW=New South Wales. *55% of all contacts did not complete a detailed symptom questionnaire and other data on symptoms at time of testing could not be obtained. +Asymptomatic in post-exposure period but reported influenza-like illness in period before primary case onset.

Table 3: Details of secondary cases resulting from COVID-19 transmission in seven NSW educational settings where enhanced surveillance of symptomatic and asymptomatic close contacts was done

data were obtained from the Australian Bureau of Statistics. Data cleaning and analysis were done using Stata, version 14.2.

Role of the funding source

The funder of the study had no role in study design, data analysis, data interpretation, or writing of the report. The funder contributed to collection of data. KM, HEQ, AJP, AK, LD, NWi, ALK, MVNO, CD, and NWO had access to the raw data. The corresponding author had full access to all of the data and the final responsibility to submit for publication.

Results

As of May 1, 2020, NSW had 3033 confirmed COVID-19 cases, representing 37.5 cases per 100 000 population and 44.8% of 6777 cases nationally (figure). In NSW, 1760 (58.0%) of 3033 cases were acquired overseas and 54 (1.8%) of 3033 cases were acquired interstate. Of 1220 locally acquired cases, 416 (34.1%) had an unknown source or were under investigation. Children aged 18 years or younger accounted for 97 (3.2%) of 3033 cases in NSW. 9% (n=9) of children with COVID-19 were admitted to hospital (most for isolation purposes only), with one child, aged 18 years, admitted to intensive care (table 1).

Notification of the first COVID-19 case in an educational setting was on March 5, 2020 (figure). Among 97 nucleic acid testing-confirmed cases in children to April 9, 2020, 19 (19.6%) attended an educational setting while infectious and were included in the study (table 1; figure). Of the other 78 paediatric cases, 44 (56.4%) were locally acquired from contact with a confirmed case, mostly from their household (70.5%; table 1).

The timing of measures implemented to ensure physical distancing and decrease population movement and school attendance rates are shown in the figure. Rates declined from approximately 90.0% to 5.0% after recommendations for distance learning were made on March 23, 2020, and immediately before school holidays commenced on April 10, 2020. Cases peaked in late March, with primary cases in schools occurring earlier in the outbreak and primary cases in ECEC settings occurring later in the outbreak (figure).

There were 27 primary cases identified in 25 schools (n=15) and ECEC settings (n=10); of 27 cases, 15 (55.6%) were staff and 12 (44.4%) were children (tables 1, 2). Of the child cases, eight (median age 15 years; range 14–16) were in secondary schools, with one (age 10 years) in primary school. Three ECEC setting primary cases were children (median age 2 years; range 2–3). Staff (median age 38 years; range 31–50) were the primary cases in four (40.0%) of

ten secondary schools, four (80.0%) of five primary schools, and seven (70.0%) of ten ECEC settings. The median time that primary cases attended the setting while infectious was 2 days (range 1–10). Infection was locally acquired for all primary cases, but the source was unknown for many (12 [44.4%] of 27). Where known, a household member was usually the source, especially for children (table 2).

Secondary transmission occurred in four of 25 settings: three schools (five cases), and one ECEC setting that had an outbreak (table 2). In total, 663 (43.7%) of 1448 close contacts were tested by nucleic acid testing or serology, or both; 18 secondary cases were identified among the total 1448 close contacts (attack rate 1.2%). Among close child and staff contacts who had laboratory testing done, the attack rate was 2.8% (tables 3, 4).

Seven of the 25 educational settings (four schools; three ECEC settings) participated in enhanced investigations (table 3). Among contacts who completed symptom questionnaires (44.9%), 65 (22.6%) of 288 developed symptoms consistent with COVID-19 during the 14-day quarantine, such as fever, sore throat, cough, or rhinorrhea. In these seven settings, 426 (66.6%) of 640 close contacts had nucleic acid testing or serological testing, or both. Secondary attack rates among symptomatic and asymptomatic contacts are shown in table 3.

Five secondary cases occurred in schools: one child in one secondary school; one child and one staff member in another secondary school; and one staff member, followed by one child in one primary school (table 3). This primary school was the only school to have a second-generation infection. Overall, two children were symptomatic and had nucleic acid testing (one positive on day 6 and the other negative on day 4 after last exposure), whereas one child and one staff member were asymptomatic and did not have nucleic acid testing. One symptomatic staff member had nucleic acid testing only (table 3). The attack rate in the tested population in schools was five (1.3%) of 375.

No SARS-CoV-2 transmission occurred in two of the three ECEC settings that participated in enhanced surveillance (25 staff and 167 child contacts). The third ECEC setting had a large outbreak first recognised via an index case in a child aged 2 years, but subsequently found related to a primary case in one staff member (infection source unknown; tables 2 and 3). Overall, six other staff and seven children were infected (attack rate 35.1%). Among the infected close contacts, three of 13 were infants (age 1 year) who remained asymptomatic.

The overall child to child transmission rate was 0.3%, and the attack rate for child to staff member was 1.0% (table 4). The rate of staff member to child transmission was lower (1.5%) than staff to staff transmission (4.4%). Excluding the single ECEC setting with the large outbreak, staff member to child (0.2%) and staff member to staff member (0.7%) transmission rates were lower compared with all settings.

	Secondary attack
All settings, all contacts, including single ECEC outbreak	1.2% (18/1448)
All settings, all contacts, excluding single ECEC outbreak*	0.4% (5/1411)
All settings, all child case to child contacts	0.3% (2/649)
All settings, all child case to staff member contacts	1.0% (1/103)
All settings, all staff member case to child contacts	1.5% (8/536)
All settings, all staff member case to staff member contacts	4.4% (7/160)
All settings, all staff member case to child contact, excluding single ECEC outbreak*	0.2% (1/511)
All settings, all staff member case to staff member contacts, excluding single ECEC outbreak*	0.7% (1/148)
All settings, tested population	2.8% (18/633)
All settings, tested population, excluding single ECEC outbreak	0.8% (5/598)
All schools, all contacts	0.5% (5/914)
All schools, tested population	1.3% (5/375)
Single ECEC outbreak,† all contacts	35.1% (13/37)
Child close contacts	28.0% (7/25)
Staff close contacts	50.0% (6/12)

Data are rate % (n/N). SARS-CoV-2=severe acute respiratory syndrome coronavirus 2. ECEC=early childhood education and care. *This outbreak resulted in at least four generations of infection and there was no evidence of child to child or child to staff transmission (unpublished).

Table 4: Secondary attack rates of SARS-CoV-2 infection by educational setting and testing approach

Discussion

This study of SARS-CoV-2 transmission in schools and early childcare settings in a defined population of 8.1 million Australians shows low case rates and secondary infections among children and staff attending educational facilities throughout the first epidemic wave of the COVID-19 pandemic. School closures during the COVID-19 pandemic have affected more than 90% of the world's student population,¹ and contributed to reducing overall population mobility, including via reduced parent and carer workforce participation. However, the insufficiency of data on age-specific and setting-specific susceptibility and transmissibility of SARS-CoV-2 has limited our understanding of what school closure, or reopening, might contribute to COVID-19 control.^{9,12} Our data provide multiple insights that need to be viewed in the context of our setting. First, and related to overall epidemic activity in NSW, the reported incidence of an infectious child or staff member attending an educational facility was low, occurring in only 25 of 7700 NSW facilities. Second, despite only 10.0% of school attendees being staff during the first part of the epidemic, when student attendance was high, overall, primary COVID-19 cases were staff members in 56.0% of educational settings; this is consistent with higher population-based rates of COVID-19 in adults than children. Third, secondary transmission of SARS-CoV-2 only occurred in three of 15 schools and one of ten ECEC settings. Only one setting,

an ECEC setting, had a sustained outbreak of COVID-19 following infection in a staff member, which was not apparent until investigation of a child index case. Excluding this single ECEC setting outbreak, the overall attack rate was five (0.4%) in 1411, or one in every 282 contacts. Continued operation of schools throughout the moderate first epidemic wave in NSW, albeit with reduced face-to-face attendance in line with public health guidance, did not appear to contribute significantly to SARS-CoV-2 transmission (attack rate 0.5%). Attendance rates were still high during the period when transmission, in the two secondary and one primary schools, occurred. This finding was in contrast to other settings in NSW, where multiple outbreaks were contemporaneously identified, including aged-care facilities and mass gatherings, such as weddings and religious services.²²

An important component of our study was enhanced follow-up in a subset of educational settings, including in both asymptomatic and symptomatic adult and child contacts. This resulted in laboratory testing in two-thirds of close contacts. The use of serology facilitated identification of four additional secondary cases, including an asymptomatic student and staff member, who were not detected using routinely deployed nucleic acid testing and increased secondary case numbers from that in our preliminary report²³ to the NSW and Australian Government (n=2). By comparison, a small study¹⁶ from Ireland of six COVID-19 cases in three schools, over less than 2 weeks, suggested no transmission to 1115 close contacts. However, children aged younger than 10 years and data on testing rates were not included. In our study, the attack rate among the tested population across all schools was low (1.3%) and was zero in nine of the ten ECEC settings. The single ECEC setting outbreak was complex and occurred early on in the epidemic in NSW. 13 (35.1%) of 37 contacts in this small centre were infected; three of the seven infected children (all aged <3 years) remained asymptomatic and the others had mild disease. Transmission chains between staff and from staff to children were apparent. Child to child or child to staff transmission appeared unlikely to have occurred but could not be excluded. In addition, delayed primary case diagnosis, due to adherence to narrow nucleic acid testing criteria recommended at the time, close mixing of staff and children and shared physical amenities, probably contributed to the several generations of transmission (data not shown; unpublished). In summary, our findings add to emerging data²⁹ on the direction of transmission from household and similar settings, such as ECEC settings, that suggest children are unlikely to initiate, or propagate, outbreaks.

We report a correspondingly low rate of paediatric disease (97 cases among 1.8 million aged 18 years or younger; 5.2 per 100000; 3.2% of total) across NSW, providing additional evidence of reduced transmission resulting in clinical disease to and between children. Studies from multiple countries have consistently shown

lower rates of COVID-19 and mild disease in children compared with adults, even in settings with much higher population-based disease rates than Australia.^{1-5,24} Multiple hypotheses are being explored to explain the decreased susceptibility of children to SARS-CoV-2, including differences in immune responses²⁵ and age-dependent expression of the angiotensin converting enzyme 2 (ACE2) virus receptor;²⁶ however, the mechanisms responsible for this phenomenon remain unclear.

The low case and transmission rates in NSW schools and childcare settings reported here were underpinned by rapid and effective state and national public health, and community, responses.¹⁷ Although community-based transmission occurred in some areas, particularly in Sydney (based on the proportion of cases [34.2%] with a local or unknown source of infection despite intensive contact tracing, and an effective reproductive number above 1 until mid-March, 2020), the NSW epidemic was smaller and of shorter duration compared with that seen in many other countries.^{17,27} Tracking SARS-CoV-2 transmission was possible in this epidemic context because frequent simultaneous case introductions to schools and ECEC settings were not occurring, and enabled by continued operation of educational facilities throughout the epidemic period, albeit with reduced face-to-face attendance in the weeks before school holidays. Higher SARS-CoV-2 primary case and transmission rates might have occurred in schools and ECEC settings if the epidemic had escalated or if extensive testing, tracing, quarantine of exposed close contacts, and other public health mitigation measures were not simultaneously and effectively implemented. Although there are no specific data on adherence to these measures by the public in NSW, several strategies were in place to support a high compliance rate, including for quarantine of close contacts identified in this study. These strategies included regular wellbeing calls by public health staff to facilitate access to essential goods without breaching isolation, and issuing of fines to people found in breach of isolation requirements during random house calls by NSW police. Interpretation of our findings needs to be made in the context of the epidemic characteristics and COVID-19 response in NSW.

Our study is also limited by several factors. First, the majority of close contacts were tested after developing symptoms, so infected contacts with no or mild symptoms might have been missed. Symptom data were also incomplete and might have been affected by participant recall bias. Additional enhanced surveillance was limited by geographical location and school or ECEC settings' willingness to participate during a challenging time. Second, transmission rates reported might have been affected by the sensitivity and specificity of assays (nucleic acid testing and the IFA for virus-specific antibody) used for the detection of SARS-CoV-2 infection. When compared with nucleic acid testing for the diagnosis of SARS-CoV-2 infection, the IFA is reported to have high sensitivity and specificity in a mixed patient population

(asymptomatic individuals to patients requiring intensive care unit admission). We did not attempt transmission rates to adjust for test performance characteristics, given the non-uniform application of diagnostic testing methods in this study. Third, variation in close contact definitions used across settings, declining school attendance rates in the 2 weeks before school holidays, and differing types of contact could not be controlled for and might have influenced attack rates. However, although face-to-face attendance declined rapidly later in the study period in response to public health advice, the number of close contacts monitored (1411; 1185 children and 263 adults) was still substantial. The national public health definition of the infectious period for cases was extended from 24 h to 48 h before symptom onset after our study period based on the latest evidence. It is probable that additional close contacts would have been identified in our study had the 48-h presymptomatic contact definition been operational before the commencement of our study. Future studies in school settings in Australia or other countries using this criteria for the potential infectious period will build on our findings. Finally, we were unable to assess adherence to or the effect on transmission of recommendations regarding hygiene or physical distancing in educational settings, and these progressively increased in magnitude over the study period.

The possible benefits of school closures on SARS-CoV-2 transmission reduction must be considered against the adverse effects on child wellbeing, including the potential to exacerbate inequality.²⁸ Although this study did not aim to assess the impact of school operation on the NSW epidemic, and it is unlikely that the effect of school closure alone can be disentangled from other broader pandemic control measures,²⁹ our findings provide evidence that SARS-CoV-2 transmission in educational settings can be kept low and manageable in the context of an effective epidemic response. These data should inform modelling and decision making regarding planned return of children and teachers to classrooms as pandemic control evolves. Where pandemic mitigation measures result in strong disease control, we anticipate that schools can be open in a safe way, for the educational, social, and economic good of the community as we adapt to living with COVID-19.

Contributors

KM, HEQ, AK, LD, NWi, ALK, CD, and NWo contributed to the study design. KM, HEQ, AJP, AK, LD, NWi, ALK, and NWo contributed to the literature review. KM, HEQ, AJP, AK, LD, NWi, MVNO, and NWo analysed the data. KM, HEQ, AJP, AK, LD, NWi, and NWo contributed to writing of the Article. KM, HEQ, AJP, AK, LD, NWi, ALK, and NWo contributed to the preparation of the Article. ALK contributed to data collection and MVNO contributed to laboratory testing. All authors contributed to data interpretation and Article review. The NSW COVID-19 Schools Study Team contributed to the study design, study recruitment, specimen collection, and participant interviews and follow-up.

NSW COVID-19 Schools Study Team

Deidre Brogan, Catherine Glover, Nicole Dinsmore, Andrew Dunn, Ajay Jadhav, Rosemary Joyce, Rama Kandasamy, Kathryn Meredith, Lisa Pelayo, Laura Rost, Gemma Saravanos (National Centre for

Immunisation Research and Surveillance); Shopna Bag, Stephen Corbett (Western Sydney Public Health Unit [PHU]); Michael Staff (Northern Sydney PHU); Kate Alexander, Stephen Conaty (South Western Sydney PHU); Kate Leadbeater (Hunter New England PHU); Brad Forssman, Sheena Kakar (Nepean-Blue Mountains PHU); Dominic E Dwyer, Jen Kok (Institute for Clinical Pathology and Microbiology, NSW Health Pathology); and Kerry Chant (Ministry of Health, NSW Government).

Declaration of interests

KM, HEQ, AJP, AK, LD, NWi, and NWo report receiving a grant from NSW Government Department of Health for the conduct of this study. NWo also reports other funding from the University of Sydney and the Sydney Children's Hospital Network outside of the submitted work. All National Centre for Immunisation Research and Surveillance-based members of the Study Team (DB, CG, ND, AD, AJ, RJ, RK, KMe, LP, LR, and GS) also report receiving a grant from the NSW Government Department of Health for the conduct of this study. RK also reports an Emerging Leader Fellowship from the National Health and Medical Research Council. All other authors declare no competing interests.

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